SPECIAL REPORT SERIES 78

HAUORA

Maori Standards of Health

A study of the years
1970-1984

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1970-1984

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Kanui te mihi ki a koutou katoa.

Eru Pomare and Gail de Boer
June 1988

Disclaimer

The views expressed in this report are those of the authors and do not necessarily represent the views of the Department of Health or the Medical Research Council.

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He Mihi

Whakarongo ake ai au
Ki te tangi a te manu nei
a te Mā-tui Tū-i, tū-i, tui-tuia.
Tuia i runga, tuia i raro,
Tuia i waho, tuia i roto.
Tuia i te here-tangata,
Kā rongo te ao, kā rongo te pō.
Tuia i te muka tangata
i takea mai i Hawaiki-nui,
Hawaiki-roa, Hawaiki-pāmamao,
Te Hono ki Wairua,
ki te whai-ao, ki te ao-mārama.
Tihei Mauriora.

E nga waka, e nga mana, e nga reo
Tēnā koutou, tēnā koutou, tēnā koutou.
Tēnā koutou i te āhuatanga ki o tātou aituā,
kua ngaro nei ki te pō.
Kua mihia, kua tangihia, kua huri rātou
ki tua o te pae.
Oti rā, kua oti atu ki te pō.
Kāti rā, tēnā ano tātou katoa.

Whakatauki:

"Kā pū te ruha, kā hao te rangatahi."

(Te Rangi Hiroa)

A Greeting

As I hearken to the cry of this bird
Outside here, the bell-voiced Tui bird,
Who cries unite, unite, let unity prevail.
Unite the heavenly realm with the earthly realm,
Unite the outermost extents of the universe
With the innermost recesses of men's hearts.
Unite with the bond of kinsmenship,
That the day can hear, but only the night can see.
Unite with the fibre of brotherhood that was transposed
From the great Hawaiki, the extensive Hawaiki,
The far distant Hawaiki, unto the portals of that realm of immortality,
The congregational halls of departed souls.
Unto this world of form, unto this world of light.
Behold there is life.

The descendents of our canoes, the pillars of society, the voices of authority - greetings, greetings, greetings. Greetings to you whilst reflecting upon our deceased who have passed on into the world of darkness. Respects have been paid, they have been mourned. They have travelled beyond the horizon. Indeed, they have passed on to eternity. So be it. Greetings all.

Proverb:

> "When the old net is worn, take a new net to the sea.
> But the new net must ask the old net where all the fish are.
> Otherwise, the new net may well be an old net by the time
> the fishing grounds are found."
>
> (Sir Peter Buck)

Foreword

Tena Koutou Katoa

Statistical information on the health status of a population is important to the general public as well as to health planners. The value of such information is enhanced when it is assembled in a concise format for easy reference and especially when it is compared with similar information from previous years, to uncover trends and point the way to appropriate action.

This new publication by Professor Pomare and Mrs de Boer builds usefully on the original document "Maori Standards of Health: a study of the 20 year period 1955-1975", published as an MRC special report in December 1980. As in the previous publication, it compares the health status of Maori and non-Maori population from many points of view.

During the past decade, an encouraging gain has been the narrowing of the gap between Maori and non-Maori in regard to both general life expectancy and standardised death rates, the latter having fallen by a total of 26% for the Maori population between 1974 and 1984, twice the rate of fall for other races combined. A major contributor to this improvement has been the great reduction in death rates among young Maori (ages 1-24 years), which are now equal to or better than the non-Maori figures.

There has been a growing realisation in the health sector over recent years that Maori and non-Maori people are not receiving equivalent benefit from our health services. While some changes have been made, our services remain essentially monocultural and often fail to respond to the needs of Maori people. Some of the trends shown in this report are a matter of grave concern. Asthma deaths have increased significantly and deaths from stroke and heart disease among adult Maori remain 3-4 times as frequent as those for non-Maori people. Risk factors for these conditions, including obesity and smoking, remain much higher for some Maori groups.

At the Hui Whakaoranga in May 1984, Department of Health and health service representatives, health professionals, voluntary workers and members of the research community met with Maori people to listen to them define health in their own terms, identify their health concerns and aspirations and share their solutions to these issues.

The recommendations of this hui, coupled with the Government's increased commitment to honouring the principles of the Treaty of Waitangi and desire to develop a bicultural state sector are beginning to have an impact on the delivery of culturally sensitive services.While work has begun, much remains to be done if the trends shown in this report are to be improved. Everyone involved in health care planning and delivery must become increasingly responsive to the needs of Maori people and their communities. A truly bicultural perspective in policy, service development and delivery should contribute towards the ultimate elimination of the existing gaps between the health status of Maori people and that of the general population.

The Department of Health and the Medical Research Council have supported and encouraged the production of this updated report in the hope that it will be widely discussed and its messages heeded. Both organisations will be playing a part in this process, since inequities in the allocation and use of health resources remain and more innovative research is needed to guide the development of health services. We hope that this report will stimulate action aimed at achieving real progress towards the goal of health for all New Zealanders by the year 2000.

Kia Ora

George Salmond
Director-General
Department of Health

J V Hodge
Director
Medical Research Council

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Introduction

It is hoped that this report will be read and discussed widely, not only within the Maori community but also by others interested in creating an environment in New Zealand which fosters the highest levels of health for all. Serious social, economic and cultural inequalities still exist between Maori and non-Maori people and are important reasons for the disproportionately high levels of sickness in Maori people which are reported within. These facts are not new to most Maori people, for similar gloomy statistics were presented in the previous report "Maori Standards of Health" published in 1980 (1). The present report issues a strong challenge to Maori and non-Maori alike, for substantial improvements in Maori standards of health will only occur through the concerted efforts of both peoples.

The previous report is now out of date, but nevertheless, there are important messages from that study which remain relevant today. Principally it was an assessment of the mortality experience in Maori and non-Maori over the 20 year period 1955 to 1975 and the present report extends that assessment for the decade to 1984. The 1980 report drew attention to the fact that the incidence and mortality from most of the common killing diseases in this country were still appreciably higher in the Maori than the non-Maori. Furthermore, the report stressed that the current poor health status of Maori people was largely due to the adoption of adverse life-style factors and that these needed to be tackled if substantial improvements in health status were to be made. The report did not address itself to the important question as to why the Maori and non-Maori differences existed but it has certainly been the strong feeling within the Maori community that socio-economic, self-esteem and cultural factors are of major importance and that some of these differences are the inevitable result of the difficulties associated with monoculturalism. This report has therefore been extended to include information relating to socio-economic, self-esteem and cultural factors.

TREATY OF WAITANGI: MAORI VERSION (2)

Ko Wikitoria, te Kuini o Ingarani, i tana mahara atawai ki nga Rangatira me nga Hapu o Nu Tirani i tana hiahia hoki kia tohungia ki a ratou o ratou rangatiratanga, me to ratou wenua, a kia mau tonu hoki te Rongo ki a ratou me te Atanoho hoki kua wakaaro ia he mea tika kia tukua mai tetahi Rangatira hei kai wakarite ki nga Tangata maori o Nu Tirani-kia wakaaetia e nga Rangatira maori te Kawanatanga o te Kuini ki nga wahikatoa o te Wenua nei me nga Motu-na te mea hoki he tokomaha ke nga tangata o tona Iwi Kua noho ki tenei wenua, a e haere mai nei.

Na ko te Kuini e hiahia ana kia wakaritea te Kawanatanga kia kaua ai nga kino e puta mai ki te tangata Maori ki te Pakeha e noho ture kore ana.

Na, kua pai te Kuini kia tukua a hau a Wiremu Hopihona he Kapitana i te Roiara Nawi hei Kawana mo nga wahi katoa o Nu Tirani e tukua aianei, amua atu ki te Kuini e mea atu ana ia ki nga Rangatira o te wakaminenga o nga hapu o Nu Tirani me era Rangatira atu enei ture ka korerotia nei.

KO TE TUATAHI

Ko nga Rangatira o te Wakaminenga me nga Rangatira katoa hoki ki hai i uru ki taua wakaminenga ka tuku rawa atu ki te Kuini o Ingarangi ake tonu atu-te Kawanatanga katoa o o ratou wenua.

KO TE TUARUA

Ko te Kuini o Ingarani ka wakarite jka wakaaee ki nga Rangatira ki nga hapu-ki nga tangata katoa o Nu Tirani te tino rangatiratanga o o ratou wenua o ratou kainga me o ratou taonga katoa. Otia ko nga Rangatira o te Wakaminerga me nga Rangatira katoa atu ka tuku ki te Kuini te hokongao era wahi wenua e pai ai te tangata nona te Wenua-ki te ritenga o te utu e wakaritea ai e ratou ko te kai hoko e meatia nei e te Kuini hei kai hoko mona.

KO TE TUATORU

Hei wakaritenga mai hoki tenei mo te wakaaetanga ki te Kawanatanga o te Kuini-Ka taikina e te Kuini o Ingarangi nga tangata maori katoa o Nu Tirani

ka tukua ki a ratou nga tikanga katoa rite tahi ki ana mea ki nga tangata o Ingarangi.

(Signed) William Hobson.
Consul and Lieutenant-Governor.

Na ko matou ko nga Rangatira o te Wakaminenga o nga hapu o Nu Tirani ka huihui nei ki Waitangi ko matou hoki konga Rangatira o Nu Tirani ka kite nei i te ritenga o enei kupu, ka tangohia ka wakaaetia katoatia e matou, koia ka tohungia ai o matou ingoa o matou tohu. Ka meatia tenei ki Waitangi i te ono o nga ra o Pepueri i te tau kotahi mano, e waru rau e wa te kau oto tatou Ariki.

Ko nga Rangatira o te wakaminenga.

TREATY OF WAITANGI: ENGLISH TRANSLATION OF MAORI VERSION (by Professor Kawharu) (2).

Victoria, The Queen of England, in her concern to protect the chiefs and subtribes of New Zealand and in her desire to preserve their chieftainship and their lands to them and to maintain peace and good order considers it just to appoint an administrator one who will negotiate with the people of New Zealand to the end that their chiefs will agree to the Queen's Government being established over all parts of this land and (adjoining) islands and also because there are many of her subjects already living on this land and others yet to come.

So the Queen desires to establish a government so that no evil will come to Maori and European living in a state of lawlessness.

So the Queen has appointed me, William Hobson a captain in the Royal Navy to be Governor for all parts of New Zealand (both those) shortly to be received by the Queen and (those) to be received hereafter and presents to the chiefs of the Confederation chiefs of the subtribes of New Zealand and other chiefs these laws set out here.

THE FIRST

The Chiefs of the Confederation and all the chiefs who have not joined that Confederation give absolutely to the Queen of England for ever the complete government over their land.

THE SECOND

The Queen of England agrees to protect the Chiefs, the subtribes and all the people of New Zealand in the unqualified exercise of their chieftainship over their lands, villages and all their treasures. But on the other hand the Chiefs of the Confederation and all the Chiefs will sell land to the Queen at a price agreed to by the person owning it and by the person buying it (the latter being) appointed by the Queen as her purchase agent.

THE THIRD

For this agreed arrangement therefore concerning the Government of the Queen, the Queen of England will protect all the ordinary people of New Zealand and will give them the same rights and duties of citizenship as the people of England.

(Signed) William Hobson
Consul and Lieutenant-Governor

So we, the Chiefs of the Confederation and the subtribes of New Zealand meeting here at Waitangi having seen the shape of these words which we accept and agree to record our names and marks thus.
Was done at Waitangi on the sixth of February in the year of our Lord 1840.

The Chiefs of the Confederation

The Treaty of Waitangi is very much to the forefront of current Maori thinking (2) and Government has already indicated a commitment towards it. In June 1986, Cabinet agreed (3):

1. That all future legislation referred to cabinet at the policy approval stage should draw attention to any implications for recognition of the principles of the Treaty of Waitangi.
2. That departments should consult with appropriate Maori people on all significant matters affecting the application of the Treaty.
3. The financial and resource implications of recognising the Treaty could be considerable and should be assessed wherever possible in future reports.

For Maori people the Treaty articulates their status as Tangata Whenua (indigenous people); guarantees their rights with respect to land, water, forests, fisheries, and other treasures; and confirms their rights to Mana

Motuhake (self-determination). The signing of the Treaty by both Maori and Pakeha was seen as the recognition of a partnership of equals and the basis for relationships between the two races (4). Implicit within the Treaty were the concepts of equity, partnership, and economic and cultural security, all of which contributed importantly to Hauora (spirit of life/health). Poor standards of Maori health may therefore be regarded in part as non-fulfillment of these Treaty concepts and obligations.

In recent years, a Maori concept of health has been emphasised and health authorities are being urged to re-think basic attitudes to health and health care along cultural and ethnic lines. Tribal authorities have been advocated as custodians of Maori health (5) and more emphasis on culture as a component of health has been recommended for the curricula of training health professionals (6). The Department of Health has made a commitment to the development of a bicultural health system and workforce and has emphasised the implications and importance of the Treaty of Waitangi as the basis of a partnership in health between Maori people and others in New Zealand (7, 8). There have been strong calls too for more effective involvement of Maori people in health planning, a critical factor if the health needs of many Maori people are to be adequately met. Basic to this aim is the recognition that health cannot be imposed on a community but must develop in an acceptable manner from within in response to problems perceived at a local level.

Maori Concept of Health

In traditional Maori terms, health is an all-embracing concept which emphasises the importance of the Wairua (spiritual), Whanau (family), Hinengaro (mental) and Tinana (physical) aspects (9). Modern terminology refers to this concept as "holistic" which contrasts with the traditional western model in which the physical aspects of health and sickness are emphasised. From the Maori viewpoint issues involving Te Whenua (land), Te Reo (language), Te Ao Turoa (environment) and Whanaungatanga (extended family), are central to the Maori culture, central to health and deeply rooted in the principles of the Treaty of Waitangi. These views of health were clearly delineated in March 1984, at the Department of Health Seminar on Maori Health, Te Hui Whakaoranga, in Auckland (9).

Whilst some may believe that the Maori concept of health has little relevance in today's world, it should be noted that the concept emphasises health promotion and disease prevention, measures of fundamental importance if one accepts the place that adverse life-style factors play in Maori ill-health (1). Health promotion too depends on the active participation of people able to identify their own health needs and priorities. As a result, innovative systems for health care and health education have arisen which not only promote healthy life-styles but do so in a culturally sensitive and appropriate environment.

MAORI HEALTH INITIATIVES

For many Maori people there are cultural and economic factors which act as deterrants to their use of existing health care services. There has also been the strong will within the Maori community to become more involved in both the planning and delivery of health care. In 1981, a strong case was made for the development of community based health programmes sensitive to the needs of Maori people at a local level (10). Many interesting programmes have now developed (11) but chronic lack of funding has been a real barrier to progress.

Marae-based health centres at Waahi and Rotorua are intimately associated with tribal organisation and development. The Waahi project has been supported by both the Departments of Health and Labour, and a priority has been the training of women from the local community to become Nga

Ringa Aroha ("those with loving hands"). The training programme integrates Maori cultural values and beliefs, traditional Maori healing practices and modern preventive health knowledge. The latter has been provided, in part, by interested staff at Waikato Hospital. Nga Ringa Aroha not only promote a Maori view of health within their community but also teach preventive health measures and strengthen links and understanding between health professionals, health services and the local community.

The Rotorua health centre is at Tumahaurangi Marae and was established by the Maori Women's Health League after discussions with different Iwi (tribal), Hapu (subtribal), Whanau (family) and interested people living in the area. Its aims are similar to those at Waahi, with emphasis on a Maori perspective of health, and health promotion and disease prevention activities.

Ngati Raukawa people have been interested for some time in documenting indices of health amongst their own people and have completed Hapu (subtribe) and Iwi (tribe) surveys. The main aim of these surveys has been to gather information about the general status of each Hapu and Iwi and of the Runanga (confederation of tribes) as a whole. Information about aspects of personal health, access to health care and use of traditional remedies has helped build up a health profile for the Runanga as a pre-requisite to future planning (9).

The Raukawa Trustees established a centre of higher learning - Te Wananga o Raukawa - in Otaki in 1981, a reformulation of an ancient institution, Te Whare Wananga, the original and most senior of which was Rangiatea. Te Wananga o Raukawa offers many courses including one in health studies which emphasises both traditional Maori and modern Western concepts of health. The health curriculum includes sections on Te Reo (language); Nga Putake (foundations of health); Whanaungatanga (family health); strategies for prevention; planning for health; and health promotion (12).

The Maori Women's Welfare League completed a major survey of the health of Maori women and their families (13), with major support from the Medical Research Council of New Zealand. This study provided a model for future research initiatives in Maori people and was a strong affirmation of Maori involvement in all stages of the planning and implementation.

A recent and innovative initiative in the Maori health area is the Waiora programme. It integrates all dimensions of health and aims to raise the self-esteem of Maori people and in particular Maori youth, by using two main strategies. The first involves community-based activities which encourage

Maori people to re-establish and strengthen their cultural, tribal and family links. The second entails promoting a positive image of Maori people, using television as a medium. The Maori response to these television programmes has been very positive indeed.

At Manuariki there is a Kura Wananga (a special school of learning) which trains Kai Awhina (assistants) in traditional healing methods. Their special skills are recognised as being of special importance when kinfolk require spiritual and cultural sustenance as part of the healing process. Many hospitals recognise the worth of these skilled people and view their services as being complementary to modern western medical practices (14).

There are many other community initiatives based as much on traditional Maori values as on contemporary modern health education. Importantly, they are initiatives which belong to the people and which give emphasis to those health priorities of relevance to that particular marae, tribe or organisation. They observe Maori protocol and depend heavily on tribal elders for support, guidance and sanction.

Classification of Ethnicity

It is important to note that there are inconsistencies in the classification of ethnicity in New Zealand's statistical collection systems (15).

Ethnic statistics collected by the National Health Statistics Centre are generally based on the biological concept (see below), with persons of half or more Maori origin being classified as Maori. Persons of less than half Maori origin are classified as non-Maori.

The quality of ethnic data depends on the accurate completion of forms by funeral directors and hospital admission staff. The limited studies undertaken looking at this problem suggest that Maori numbers are understated in health statistics (15). Accordingly, it is probable that the differences in health status between the Maori and non-Maori populations are actually wider than indicated in this report.

DEATHS

The funeral director is responsible for completing the death registration form (RG28) which includes a question on degree of Maori blood of the parents of the deceased. If this question is not completed by the funeral director, the deceased is classified as non-Maori.

In the case of infant deaths (ages under 1 year), a validation exercise has been carried out by the Vitals Section, Department of Statistics, since 1975, by routinely matching infant death registrations with their corresponding birth registration form (RG27). Birth registration forms are considered to be more accurate for ethnic information than death registration forms, as they are completed by a parent.

If an infant death registration does not record the child as of Maori ancestry but the birth registration does, the death record is amended to agree with the birth record. In 1984, 95.5% of infant deaths were matched with their corresponding birth registration and 67 infants had their ethnic classification changed from non-Maori to Maori. This would indicate that Maori deaths at all other ages are likely to be under-reported.

PUBLIC HOSPITAL DISCHARGES

Ethnic information is recorded by Admissions Office staff and due to the wording of the question on the admission form is based more on self-identification than the biological concept. One small study at Wellington Hospital showed that on the day of the survey the number of Maori patients recorded on the admission/discharge forms were understated by 30% (16). This survey was based on ethnic classification by self-identification.

PSYCHIATRIC HOSPITAL ADMISSIONS

Ethnic data is recorded on admission to a psychiatric hospital and is based on the biological concept.

POPULATION DATA

The Department of Statistics population data used for the calculation of rates for this report, and by the National Health Statistics Centre, have been based on the biological concept.

STANDARDISATION OF RATES

The age structure of the Maori population is very different to that of the non-Maori population as detailed in Section 1 of this report. As a result, Maori crude rates (i. e. rates for all ages combined) cannot be validly compared with non-Maori crude rates. To overcome this problem, rates for all ages combined have been standardised for age using Segi's World Population (17) as the "standard population". These age-standardised rates show how many deaths or hospital discharges for example, would have occurred in the standard population if the Maori and non-Maori age-specific rates were applied to that standard population.

It should be noted however, that age-standardisation produces a fictional rate which should be used for comparison purposes only; a standardised rate alone has no meaning. All other rates used in this report are the true age-specific rates which can be compared with each other.

Maori Population

HIGHLIGHTS

- At the 1986 Census, 12. 4% (404,778) of the total population identified themselves as being of Maori descent.
- 71% (287,697) of the Maori population were aged under 30 years.
- 2% (9,414) of the Maori population were aged 65 years or over. It is estimated that this percentage will increase 3-fold in the next 20 years.
- 89% (360,180) of the Maori population were living in the North Island.
- Life expectancy at birth is 7 years shorter for Maori males and 8. 5 years shorter for Maori females compared to the non-Maori population.

TE TATAURANGA O TE IWI

- I te tau 1986 ka tatauria ngā tāngata o te motu katoa. E whai ake nei te āhuatanga ki te Iwi Māori - te hunga i kī i heke mai rātou i te tipuna Māori:-

Ko ngā Kaumātua (65 ngā tau, piki atu)	9,414
Ko ngā Taipakeke (31-64 ngā tau)	107,667
Ko ngā Taitamariki (16-30 ngā tau)	129,942
Ko ngā Tamariki (0-15 ngā tau)	157,755
Hui katoa:	404,778

35,598 kei Te Waipounamu me ōna moutere
369,180 kei Te Ika a Maui me ōna moutere

For statistical purposes, all persons of half or more Maori origin have in the past been defined as the Maori population. This differs from the wider definition introduced in the Maori Affairs Amendment Act 1974. That Act states that "Maori" means a person of the Maori race of New Zealand and includes any descendant of such a person.

A total of 279,255 persons stated at the 1981 Census that they were of half or more Maori origin. This compares with 227,414 in 1971 and 270,035 in 1976. The 1976 figure however, included 65,582 persons who indicated that they were of Maori origin but did not specify degree of descent. All persons identifying themselves as of Maori origin were included in the 1986 Census figure of 404,778.

Table 1 shows the Maori population for the census years 1971-1986. The proportion of Maori descendants in the total population has increased from 10. 1 in 1971 to 12. 4 in 1986.

TABLE 1

MAORI POPULATION BY CATEGORY OF ORIGIN, 1971-86

Census Year	Half or more Maori Origin		Maori Descendants	
	Number	Proportion of Total Population	Number	Proportion of Total Population
1971	227,414	7.9	290,501	10.1
1976	270,035 *	8.6	356,847	11.7
1981	279,255	8.8	385,224	12.4
1986	..	..	404,778	12.4

* Includes 65,582 persons who indicated that they were of Maori origin but did not specify degree of descent.

Source: New Zealand Census of Population and Dwellings

GEOGRAPHICAL DISTRIBUTION

The Maori population is becoming increasingly an urban one. At the 1926 Census the urban Maori population totalled 99,005 (15. 6%). By the 1986 Census the figure had risen to 326,646 (80. 7%), the largest concentration being in the Central and Southern Auckland urban areas with a total of 69,486 (17. 2%). The proportion of the Maori population in the North Island in 1986 was 89% (360,180).

TABLE 2

MAORI POPULATION BY STATISTICAL AREA, 1986 (Provisional)

Statistical Area	New Zealand Maori*	
	Number	Percent
North Island		
Northland	30,489	7.6
Central Auckland	99,222	24.6
South Auckland – Bay of Plenty	103,917	25.8
East Coast	17,982	4.5
Hawkes Bay	28,491	7.1
Taranaki	12,399	3.1
Wellington	67,677	16.8
Total North Island	360,180	89.3
South Island		
Marlborough	2,625	0.7
Nelson	3,579	0.9
Westland	1,344	0.3
Canterbury	19,836	4.9
Otago	6,960	1.7
Southland	8,667	2.1
Total South Island	43,011	10.7
Total, New Zealand	403,191	100.0

* New Zealand residents of Maori origin

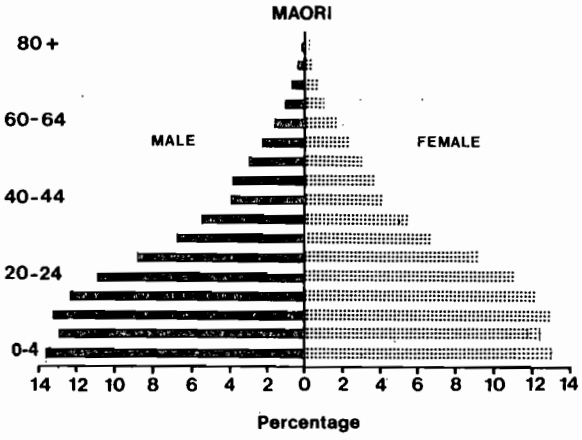
Source: New Zealand Census of Population and Dwellings

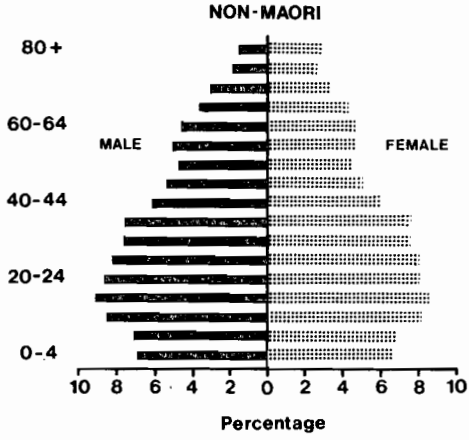
AGE DISTRIBUTION

The Maori population is a young one. At the 1986 Census, 71% (287,697) of the Maori population were under 30 years of age, compared with 47% (1,357,329) of the non-Maori population. Furthermore, 39% (157,755) of the Maori population were under 15 years of age, compared with 22% (637,224) of the non-Maori population. In contrast just 2% (9,414) of the Maori population was aged 65 years and over compared with 11. 6% (332,694) of the non-Maori population.

FIGURE 1

AGE DISTRIBUTION OF POPULATION BY RACE & SEX, 1986 CENSUS





Source: New Zealand Census of Population and Dwellings, National Summary, 1986.

LIFE EXPECTANCY

The 1980-82 life tables show life expectancy at birth for Maori males as 63.8 years and for Maori females as 68. 5 years. This compares with 70. 8 for non-Maori males and 77. 0 for non-Maori females.

Life expectancy at birth for Maori males increased by 2. 8 years between 1970-72 and 1980-82, while that for Maori females increased by 3. 5 years. By comparison, non-Maori life expectancy at birth rose by 1. 7 years for males and by 1. 8 years for females.

TABLE 3

MAORI AND NON-MAORI LIFE EXPECTANCY (YEARS) 1970-72 AND 1980-82

New Zealand Life tables	Exact age (years)	Life Expectancy (Years)			
		Maori		Non-Maori	
		Male	Female	Male	Female
1970-72	0	61.0	65.0	69.1	75.2
1980-82		63.8	68.5	70.8	77.0
1970-72	20	44.0	47.5	51.2	56.7
1980-82		46.2	50.7	52.4	58.2
1970-72	40	26.6	29.2	32.4	37.5
1980-82		28.1	31.9	33.7	38.9
1970-72	60	13.0	14.6	15.8	19.9
1980-82		13.4	16.4	16.7	21.2

Source: Department of Statistics, Life Tables

DISCUSSION

Probably the most profound change in the Maori population this century has been its urbanisation from a largely rural existence to one in which over 80% reside in urban areas, particularly within and about Auckland. The social, economic and cultural issues associated with this change are immense and are at the root of the unequal health experience of the Maori people in New Zealand society today. In many respects, the patterns of ill-health in Maori people resemble those of migrant populations, in this case the migration being a rural-urban one (18).

In the past decade the proportion of Maori descendants in the total population has increased and is currently recorded as 12. 4% (1986 census). Whilst it has been speculated by some that a third of the population will be Maori by the year 2000, a recent comprehensive study would suggest a proportion

of 17-19% to be a more realistic estimate (19). There are nevertheless important implications in these population composition changes and a need for forward planning is imperative.

The Maori population is a young one with over 70% under the age of 30 years and most living in the North Island (89%). It has been calculated that by the year 2000 there will be large shifts in the composition of Maori age groups and these will have an important impact on all aspects of New Zealand's social and economic policy. For instance, the rate of unemployment in the Maori population is high and particularly affects the 15-29 year age-group who will enter the next decade with a dismal unemployment record and with few skills upon which to capitalise and build up equity. This cohort of younger Maori could therefore be even more underprivileged than the cohorts of Maori peoople both behind and ahead of them.

While very few Maori people (2%) are aged 65 years or over, there has been a 50% increase in the size of this group in the past decade. In the next 20 years it has been estimated that the number of elderly Maori people will increase three-fold to around 6% of the total Maori population (19). The implications for Maoridom are positive in that there will be a significant increase in the number of Kaumatua (elderly Maori). They will considerably strengthen the pool of traditional Maori leaders at a time when their leadership is much needed to help rebuild the cultural fabric of Maori society. However, this task will not be easy for there are now generations of Maori people who have been little influenced by or have little appreciation or respect for the wisdom and authority that resides with the kaumatua.

Although the life expectancy of Maori people at birth has increased appreciably in the past 30 years, there still exists a difference of 7 to 8 years between the two populations. As noted previously, changes in the age composition of the Maori population will have major implications for the Maori community, social planners and politicians.

Since the majority of Maori people live in the North Island, particularly the north and the east, the health authorities in these areas will have an important responsibility to demonstrate their commitment to improving Maori health in its broadest sense. This will mean the active participation of Maori people in all aspects of health planning so that culturally sensitive health programmes may be developed which are appropriate to the Iwi (tribes) of the region. Finally, as the Maori population ages, the burden of ill-health from cancer and chronic lung disease will increase and this will be particularly severe in Maori women.

Fertility

HIGHLIGHTS

- The Maori total fertility rate has fallen almost three-fold from 6. 2 births per woman in 1962 to 2. 2 in 1985.
- In 1984, 64. 2% of Maori births were to mothers aged under 25 years compared to 34. 6 percent of non-Maori births.
- A greater percentage of Maori infants are of low birthweight. In 1984, 7. 4% were below 2,500 grams compared to 5% of non-Maori infants.
- In 1984, 63% of Maori births were defined as ex-nuptial compared to 19% of non-Maori births.

TE WHANAWHANAU TAMARIKI

- I te tau 1962, ka whakatōpūngia ngā wāhine whānau tamariki me ngā tamariki; ka kitea, eke ana ki te ono (6) ngā tamariki a tēnā wahine, a tēnā wahine.
- Nō te tau 1985, e rua (2) noa iho ngā tamariki a ia wahine.
- Kua kitea anō hoki, te nuinga o ngā tamariki Māori whānau hou, he moroitiiti, he pirōhea – e rima pāuna (2,500 grams) noa iho te taumaha.
- Kua tupu te whakaaro nā te kai waipiro, nā te kai hikareti a ngā wāhine hapū i kore ai e pakari te tipu o te tamaiti i roto i te kōpū o tana whaea.
- Āpiti atu hoki, ko te nuinga o ngā wāhine whānau tamariki, kāore ā rātou tāne.

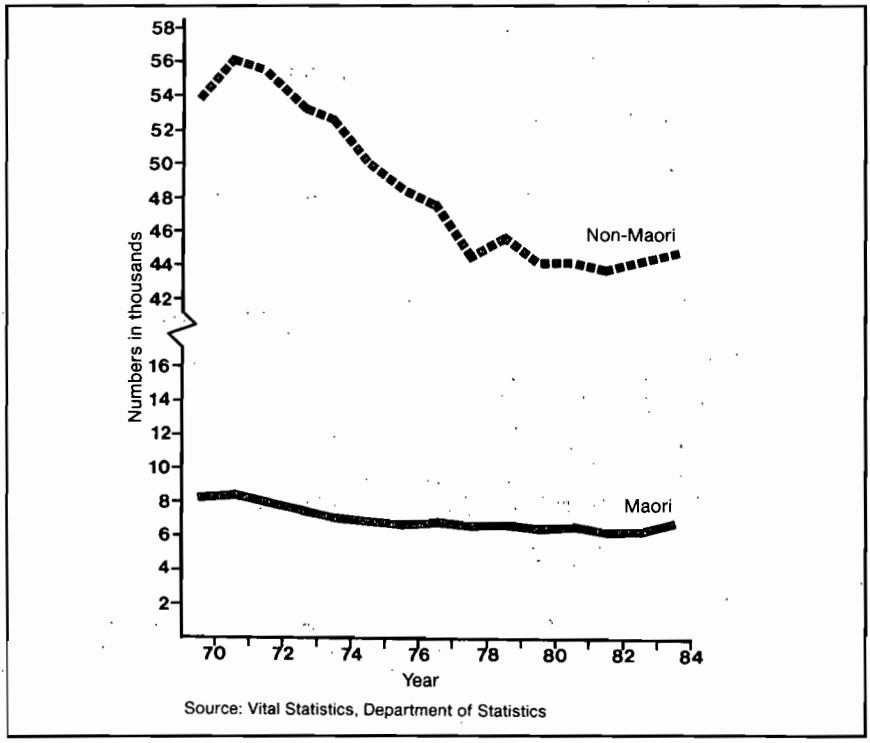
The Maori population has a higher rate of natural increase than the non-Maori population. This is mainly due to a higher birth rate which is associated with the younger age structure of the Maori population.

There has however, been a fairly rapid decline in fertility rates in New Zealand over the past 25 years and a narrowing of the difference between Maori and non-Maori fertility. The Maori total fertility rate has fallen from 6. 2 births per woman in 1962 to 2. 2 births per woman in 1985. In 1962, the difference between Maori and non-Maori total fertility rates was 2. 0 births per woman but by 1985 it had narrowed to 0. 5 births per woman.

Figure 2 shows the number of live births by race for the years 1970-84. Of the 51,636 babies born in 1984, 6,745 (13%) were registered as being of half or more Maori ancestry.

FIGURE 2

LIVE BIRTHS BY RACE, 1970-84



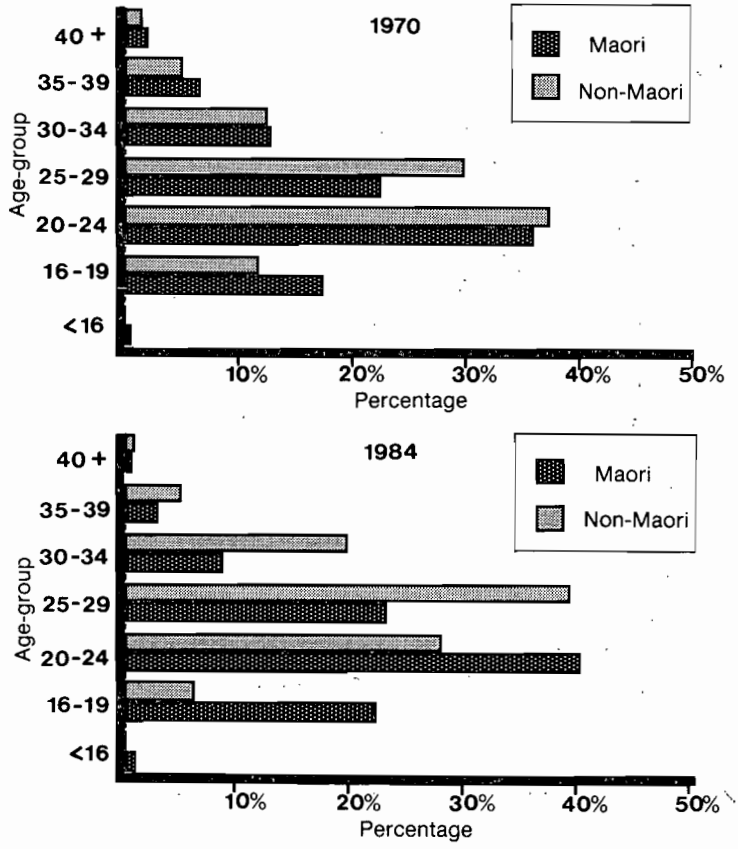
Source: Vital Statistics, Department of Statistics

AGE OF MOTHERS

The number of Maori women giving birth at ages under 25 years has increased since 1970 in contrast to non-Maori women where the proportion has decreased. Conversely, at ages 25 years and over, the proportion of births has increased in non-Maori women and decreased in Maori women. In 1984, 64. 2% of Maori births were to mothers aged under 25 years compared to 34. 6% of non-Maori births.

FIGURES 3 and 4

PERCENTAGE OF BIRTHS BY AGE AND RACE OF MOTHER, 1970 & 1984



Source: Vital Statistics, Department of Statistics

BIRTHWEIGHT OF INFANTS

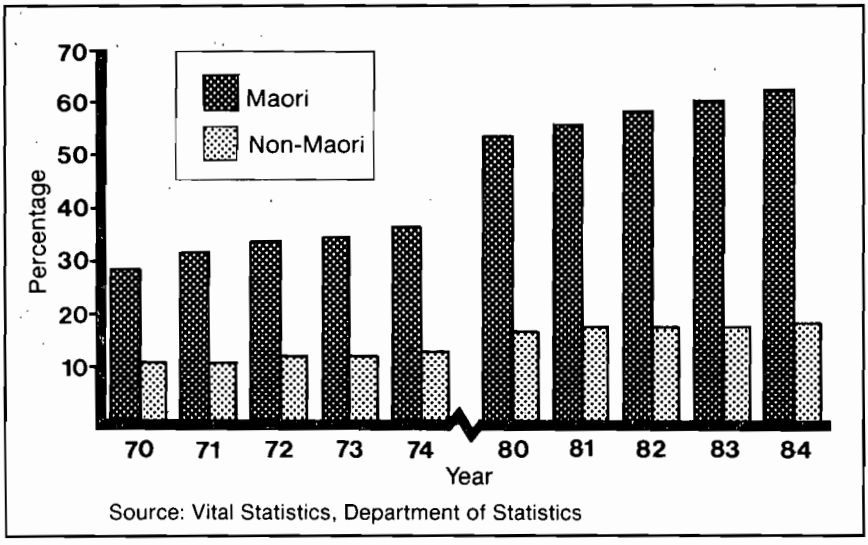
A greater percentage of Maori infants are of low birthweight. In 1984, 7. 4% of Maori infants had a birthweight below 2500 grams compared to 5% of non-Maori infants.

EX-NUPTIAL BIRTHS

The number of ex-nuptial births (i. e. to parents not married) has been increasing, particularly in the Maori population. In 1984, 63% of Maori births were defined as ex-nuptial compared to 19% of non-Maori births. (It should be noted however, that many single mothers are living in a stable de facto relationship.)

FIGURE 5

PERCENTAGE OF EX-NUPTIAL LIVE BIRTHS BY RACE, 1970-74 & 1980-84



Source: Vital Statistics, Department of Statistics

DISCUSSION

The decline in the Maori fertility rate has been rapid and dramatic over the past 25 years, falling by almost two-thirds and is now approaching the non-Maori fertility rate. Twice as many Maori mothers as non-Maori mothers are under 25 years but perhaps of more concern is the high number of ex-nuptial

births, a third of whom were to women aged less than 20 years. Indeed, just over 20% of all Maori births are to unmarried Maori teenage women. The social implications of these observations are complex. It could be argued for instance that a young Maori mother may have her self-esteem enhanced given she has now assumed a position of considerable importance and responsiblity. In addition, personal and family relationships may be strengthened, fostering feelings of self-worth and usefulness. These are important considerations when one considers the alternatives which include unemployment, loneliness and discrimination in its many guises. A newborn child will be seen as a precious gift to the family whatever the circumstances of its arrival.

Whilst there may seem to be advantages superficially for young, single Maori women to have babies, there are also important costs. Maori infant mortality remains high and the admissions of Maori infants to our public hospitals are more than twice non-Maori rates (see Tables 23 and 44). Cot death rates are alarmingly high (see Table 22). These facts all point to important problems affecting Maori infants. Proper parenting is a skilled occupation which will be most difficult for those mothers with few supports, limited financial resources, who have lower than average living standards and less than average education (20). Indeed, recent health surveys would suggest that the babies of mothers in these circumstances are less likely to receive the sorts of health protection measures they require for optimal health such as immunisations (21).

The percentage of Maori infants of low birthweight is almost 50% higher when compared to non-Maori infants. Lower birthweight infants are more prone to illness and death (22). Indeed, low birthweight has been identified as one of the contributory factors in "cot deaths" (23). It is also probably true that the greater number of Maori infants of low birthweight relates to the fact that a high percentage of young Maori mothers smoke (13, 24, Figure 40).

- The most common income group for Maori males in the full-time labour force at the 1986 Census ($10,001-$12,500) was half that of non-Maori males ($20,001-$25,000).
- Less than 50% of Maori people own their own homes compared to 75% of non-Maori people.
- In 1984, there were more than 8 times as many Maori males (5.7%) compared to non-Maori males (0.7%), aged 20-24 years, who were received as prisoners.
- Homicide deaths were 4 times higher in Maori males than non-Maori males.
- 62% of Maori school-leavers in 1984 had no formal educational qualifications.
- In 1987, more than 9,000 pre-schoolers were attending the 493 established Kohanga Reo centres.

SOCIO-ECONOMIC STATUS

The majority of Maori people are in the lower socio-economic bracket. Using the Elley-Irving social class scale (25), 64.5% of Maori males occupied social classes 5 and 6, compared to 29% of non-Maori males. At the other end of the scale, 3.2% of Maori males were in social classes 1 and 2, compared to 16% of non-Maori males.

LABOUR FORCE

At the 1986 Census, 14.9% of the Maori labour force were unemployed compared with 5.8% of the non-Maori labour force.

Looking at the total number of unemployed, 25,389 (23.3%) were Maori.

More than one third (36. 4%) of the unemployed Maori population were aged15-19 years and a further 23. 7% were aged 20-24 years.

The proportion of wage and salary earners in the Maori labour force dropped from 88. 7% in 1976 to 78. 5% in 1986.

TABLE 4

SOCIAL CLASS DISTRIBUTIONS FOR MALES AGED 15-64 YEARS, 1976 CENSUS

Social Class (Elley-Irving Scale)	Maori %	Non-Maori %
1	0.9	5.8
2	2.3	10.2
3	8.7	24.9
4	23.6	30.0
5	30.2	16.5
6	34.3	12.5

Source: Determinants of differences in mortality between New Zealand Maori and non-Maori aged 15-64 – Smith and Pearce (1984)

TABLE 5

MAORI LABOUR FORCE BY EMPLOYMENT STATUS, 1976, 1981 AND 1986

Employment Status	1976		1981		1986	
	Number	Percent	Number	Percent	Number	Percent
Employer	1,709	1.9	1,572	1.5	3,144	1.9
Self employed	2,301	2.6	2,181	2.1	6,240	3.7
Wage and salary earner	79,247	88.7	85,248	82.1	133,350	78.5
Relative assisting	207	0.2	222	0.2	1,089	0.6
Unemployed*	5,924	6.6	14,592	14.1	25,389	14.9
Not specified	296	0.3	369	0.4	726	0.4
Total	89,684	100.0	104,181	100.0	169,935	100.0

* Includes persons seeking work

Source: New Zealand Census of Population and Dwellings

Tables 6 and 7 show the gainfully employed full-time labour force by occupational group, race and sex as at the 1986 Census. Maori workers made up 9. 6% of the male and 10% of the female labour force.

Maori workers were under-represented in the professional and skilled white collar occupations. Only 6. 7% of full-time employed Maori males and 11. 8% of Maori females were in the professional, technical, administrative and managerial occupational groups compared to 21. 7% of non-Maori males and 21. 6% of non-Maori females.

The principal occupational group for the Maori labour force was production, transport equipment operators and labourers (63. 8% of Maori males and 32. 2% of Maori females).

TABLE 6

MALE POPULATION (15 YEARS AND OVER) GAINFULLY EMPLOYED IN FULL-TIME LABOUR FORCE BY OCCUPATIONAL GROUP AND RACE, 1986 CENSUS

Occupational Group	Maori			Non-Maori		
	Number	% Maori labour force in each occupation	% of Maori labour force	Number	% non-Maori labour force in each occupation	% of non-Maori labour force
Professional, technical	4,158	3.8	5.1	106,434	96.2	14.0
Administrative, managerial	1,299	2.2	1.6	58,590	97.8	7.7
Clerical	4,290	6.6	5.3	60,345	93.4	7.9
Sales workers	2,694	3.6	3.3	71,619	96.4	9.4
Service workers	5,214	10.5	6.4	44,409	89.5	5.8
Agricultural, animal husbandry, forestry, fishermen and hunters	10,146		12.5	99,183		13.0
Production, transport, equipment operators and labourers	51,714	14.2	63.8	312,864	85.8	41.1
Occupation not adequately defined	1,500	17.9	1.9	6,876	82.1	0.9
Total	81,015	9.6	100.0	760,320	90.4	100.0

Source: New Zealand Census of Population and Dwellings

MAORI INCOME

The most common income group for Maori males in the full-time labour force at the 1986 Census was $10,001-$12,500 compared to $20,001-$25,000 for non-Maori males. For Maori females the most common income group was $7,500-$10,000 compared to $10,001-$12,500 for non-Maori females.

The differences in income can partly be explained in terms of the younger age structure of the Maori workforce but it also results from factors such as lower educational attainment and the resulting under-representation of Maori workers in the higher-paid occupational groups.

HOUSEHOLDS

Fewer Maori people own their homes compared to non-Maoris. At the 1981 Census, 72. 9% of permanent, private non-Maori dwellings were owned

TABLE 7

FEMALE POPULATION (15 YEARS AND OVER) GAINFULLY EMPLOYED IN FULL-TIME LABOUR FORCE BY OCCUPATIONAL GROUP AND RACE, 1986 CENSUS

Occupational Group	Maori			Non-Maori		
	Number	% Maori labour force in each occupation	% of Maori labour force	Number	% non-Maori labour force in each occupation	% of non-Maori labour force
Professional, technical	4,815	6.0	11.0	75,066	94.0	19.1
Administrative, managerial	369	3.6	0.8	10,008	96.4	2.5
Clerical	10,890	7.2	24.8	140,115	92.8	35.7
Sales workers	2,625	5.5	6.0	44,787	94.5	11.4
Service workers	7,557	14.8	17.2	43,359	85.2	11.0
Agricultural, animal husbandry, forestry, fisherwomen & hunters	2,769	9.0	6.3	27,933	91.0	7.1
Production, transport, equipment operators and labourers	14,118	22.3	32.2	49,059	77.7	12.5
Occupation not adequately defined	756	22.2	1.7	2,643	77.8	0.7
Total	43,899	10.0	100.0	392,970	90.0	100.0

Source: New Zealand Census of Population and Dwellings

(with or without a mortgage) compared to only 45. 3% of Maori dwellings. Figures from the 1986 Census were not available at time of printing.

CRIME AND VIOLENCE

Research has indicated that most, but not all, of the differences among the rates of offending by people from different ethnic groups can be explained in terms of the different levels of unemployment, education and socio-economic status among these groups (26).

It should be noted that classification of ethnicity for criminal offenders is based on the perception of the offender by police and prison officers and not on the biological concept or self-identification (27).

Table 8 shows the number of male Maori and non-Maori prisoners received in alternate years 1970-84 as a percentage of their representation in the population. In 1984, 5. 7% of the Maori male 20-24 year old population were

TABLE 8

MALE PRISONERS RECEIVED, AS PERCENTAGE OF AGE AND ETHNIC GROUP, 1970-1984

Age Group	Year							
	1970	1972	1974	1976	1978	1980	1982	1984
	Percentage by Ethnic Origin and Age Group Population							
Maori Males								
15 – 19	4.4	5.9	4.5	4.0	3.6	3.9	5.0	4.9
20 – 24	6.1	6.0	4.3	4.9	3.9	4.1	4.9	5.7
25 – 29	3.0	3.1	2.5	2.8	2.1	2.5	2.8	3.5
30 – 34	2.2	2.2	1.9	1.9	1.4	1.5	1.7	2.1
35 and over	0.9	1.0	0.9	0.7	0.6	0.6	0.5	0.7
Total	2.9	3.2	2.6	2.6	2.1	2.3	2.7	3.0
Non-Maori Males								
15 – 19	0.7	0.7	0.7	0.7	0.5	0.5	0.5	0.6
20 – 24	0.8	0.8	0.7	0.9	0.7	0.7	0.6	0.7
25 – 29	0.4	0.5	0.3	0.4	0.4	0.4	0.4	0.4
30 – 34	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2
35 and over	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.3

Source: Justice Statistics, 1984, Part A

received as prisoners compared to 0. 7% of the non-Maori population. For all males, the proportion of the population imprisoned in most years is highest at 20-24 years and then falls with increasing age.

Table 9 shows proven violent offenders by ethnicity for the years 1979-85. The number of non-Maori offenders has increased at a slower rate than the number of Maori offenders. The proportion of non-Maori offenders is therefore decreasing and the proportion of Maori offenders is increasing.

TABLE 9

ETHNICITY OF PROVEN VIOLENT OFFENDERS, 1979-85
Number and percentage of total violent offenders

Year	Maori		Non-Maori	
	Number	Percentage of total	Number	Percentage of total
1979	1343	39	2135	61
1980	1508	40	2238	60
1981	1631	41	2304	59
1982	1774	41	2572	59
1983	1917	42	2633	58
1984	2149	42	2935	58
1985	2229	43	2927	57

Source: Submission to the Committee of Inquiry into Violence
Department of Justice, Wellington, November 1986

Maori deaths due to homicide are higher than for non-Maori. Maori male homicide deaths totalled 24 in 1980-84, the rate of 0. 4 per 10,000 population being 2 times higher than the non-Maori rate of 0. 2 (107 deaths). Maori female homicides totalled 11 in 1980-84, the rate of 0. 2 also being twice the non-Maori rate of 0. 1 (70 deaths).

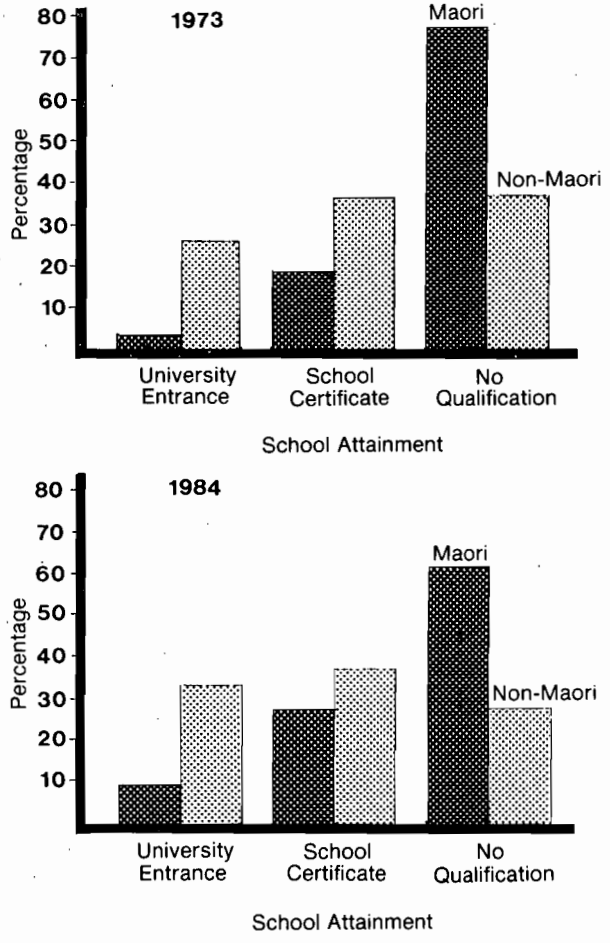
EDUCATION

In 1984, Maori children made up 16. 2% of the primary and secondary school population.

Figure 6 shows the attainment of school leavers by race for the years 1973 and 1984. Sixty-two percent of Maori school leavers in 1984 had no formal educational qualifications compared to 28% of non-Maori school leavers.

FIGURE 6

ATTAINMENT OF SCHOOL LEAVERS BY RACE, 1973 AND 1984



Source: Educational Statistics of New Zealand, Department of Education

A study by Lauder, Hughes and Taberner (28), looked at educational success and failure as they relate to class background (based on father's social class). They found significant class differences in the rates of failure

at School Certificate, with only 12% of upper class background students leaving without School Certificate pass compared with 36% of working class background students. They saw educational failure being related to social class background rather than being significantly related to race.

A positive step in education for the Maori population has been the establishment of the pre-school Kohanga Reo centres where the emphasis is on Maori language and culture. In 1987, more than 9,000 children were attending the 493 established Kohanga Reo centres (29).

DISCUSSION

Maori people are grossly disadvantaged socially, economically and culturally. This is highlighted in their high levels of unemployment, low earning capacity, poorer educational attainment, low home-ownership, over-representation in penal institutions and high rates of physical and mental ill-health.

Unemployment in the Maori labour force is 2. 5 times that of the non-Maori and has increased significantly in recent times. This level of Maori unemployment is high by world standards, appalling for New Zealand and detrimental to health (30). In areas with a high proportion of Maori people such as Northland and Gisborne, very high levels of unemployment are seen (31). The brunt of this unemployment is borne by young Maori people under 25 years. There is a great deal of evidence from overseas that links unemployment with ill-health, both in the short and long-term (30, 32, 33, 34). Lack of economic security is stressful and as a result, social and family structures break down, children's behaviour is disturbed, and habits that are harmful to health (e. g. smoking and alcohol) are adopted (35, 36). Acute problems such as depression, suicide, violent behaviour and homicide are observed more frequently and in the longer term, chronic conditions such as ischaemic heart disease appear more often (33, 34). The Maori experience is entirely compatible with these observations and as Maori unemployment escalates, so are these problems likely to deepen. Furthermore, for Maori women one wonders whether the excessive burden of coronary heart disease and cancer is not in part related to these social stresses.

Whilst these general observations about unemployment and health in Maori people can be made, there is little specific information or research into this topic in New Zealand. A small study in Wellington in 1978 showed a relationship between unemployment and the incidence of both fatal and

non-fatal deliberate self-harm (37). In the same study, Maori people had the highest rates for non-fatal events ahead of Non-Maori and Polynesian. A more recent study in New Zealand suggests health problems relating to unemployment will become increasingly more apparent as unemployment rises (38). But perhaps of most relevance is the finding that gang offending and anti-social behaviour was reduced when unemployment was tackled by the implementation of contract work schemes (26). There is an urgent need for more research into unemployment and health, and particularly the impact it is having both now and will have in the future in the Maori community.

Maori people are the lowest wage-earners in New Zealand society and added to the economic stresses of unemployment, poverty for many families has become a way of life. Many families are just not able to pay for medical services and this may be one important reason why Maori adults overall make less use of their general medical practitioners than might be predicted from their levels of ill-health (13, 39, 40). Transport costs may be just as important a consideration as the doctor's fee in this context. This lesser use of primary medical services may partly explain the more severe illness observed in common conditions such as asthma and diabetes because of late presentation (41, 42) and the higher rate of hospitalisation overall for Maori people (more complications of disease).

High rates of imprisonment and violent crime in Maori people occur against a background of high unemployment, and severe social and economic disadvantage. Maori people make up more than half of all sentenced prisoners which is considerably greater than one would expect given the Maori offending rate (43). The same is true of Maori remand prisoners and has led to questions being asked as to the fairness of the judiciary process (43). The Maori imprisonment rate too has been increasing steadily in the past decade and violent crime has become more frequent. Given the increasing degree of Maori disadvantage and racial tension it is likely these disturbing trends will become even worse. Again there is a need to determine more clearly the importance of such factors as unemployment, education, ethnicity and drugs, especially if preventive education programmes are to be developed.

Educationally, the majority (62%) of Maori children leave school without any formal educational qualification. In addition, few Maori pupils complete 6th and 7th form studies. In 1985, there were 2,535 (7. 3%) Maori pupils in the 6th form and 438 (4. 2%) in the 7th form in New Zealand schools. Few Maori pupils are therefore in a position to enter university studies. In 1987,

there were just 1,991 Maori students (3. 8%) out of a total of 52,039 students registered in New Zealand universities (44). These facts explain to a large extent why there are few Maori workers in professional jobs or positions with decision-making responsibilities and why the majority of Maori people occupy the lowest two social classes (see Table 4). These social and economic disadvantages equate directly with poorer standards of health.

On the positive side, the rapid development of the Kohanga Reo pre-school language nests since 1982, has highlighted the growing feeling within Maoridom that culture and health are vitally linked. Kohanga Reo centres have also become health centres for parents and grandparents and seminars on topics such as parenting, nutrition etc provide an important focus for health promotion. Above all though, the Kohanga Reo movement, by promoting the Maori language and culture, fosters a healthy sense of personal worth and respect for others, necessary ingredients if self-esteem is to be enhanced.

Since the financial resources at the disposal of many Maori families are meagre it does not surprise that the level of Maori home ownership is less than 50% and much lower than for non-Maori families. Adequate housing is a pre-requisite for good health and better life prospects and equates with reduced mortality (30, 45). Furthermore, high density housing and inadequate housing amenities affect mortality, particularly in the 0-4 year age-group (46). In a small study in the Hutt Valley, a significant relationship was found between over-crowding/damp housing and the prevalence of respiratory illness (47) and in Whangarei, ear diseases were more common in children living in over-crowded circumstances (48). In both studies Maori children were predominantly affected. The effects of inadequate housing on Maori health however, are largely unknown.

Mortality

HIGHLIGHTS

- The Maori age-standardised death rate reduced by 25. 8% between the periods 1970-74 and 1980-84. This is twice the improvement recorded by the non-Maori population.
- Maori and non-Maori infant deaths due to perinatal causes (conditions arising in the first week of life) have more than halved over the past 15 years.
- The cot death rate for Maori infants is on average nearly twice that of non-Maori infants and is the main contributor to infant deaths.
- Maori children (1-14 years) now have a lower total death rate than non-Maori children.
- Maori and non-Maori males aged 15-24 years experienced the same total death rate in the period 1980-84.

TE MATEMATE O TE TANGATA

Te nuinga o ngā Māori, e hemohemo ana i runga i ngā āhuatanga e whai ake nei:

- I te mate ohorere, mate whawhati tata o ngā tamariki nonohi i roto i ō rātou moenga.
- He mate whakamomori te maha o ngā taitama 15-24 ngā tau.
- Nā te huangō, nā te hēmanawa me te wharowharo o ngā pūkahukahu.
- He mate manawa (Māori/ Pākehā)
- He mate pukupuku (cancer)
  - mō ngā wahine (Māori/ Pākehā), 25-64 ngā tau
  - kei ngā pūkahukahu
  - kei te tomokanga atu ki te whare tangata
  - kei te puku

- Accidents are the leading cause of death for all pre-schoolers but the Maori rate for motor vehicle accidents in 1-4 year olds has halved between the periods 1970-74 and 1980-84.
- Accidents are the leading cause of death for both Maori and non-Maori males at ages 1-44 years.
- Maori death rates from asthma have increased at ages 5-24 years.
- There has been a two and half times increase in Maori male suicides at ages 15-24 years in the decade to 1980-84.
- At ages 25-64 years, total death rates for Maori women are twice that of non-Maori women.
- Cancer is the leading cause of death in both Maori and non-Maori women in the 25-64 year age-group. Disproportionate rates are noted in Maori women for cancer of the lung, cervix and stomach.
- Respiratory diseases cause 2-3 times more deaths in Maori people at all ages. Asthma is the most important cause up to 44 years and thereafter, chronic obstructive disease.
- Overall, coronary heart disease is the single most important cause of death in both Maori and non-Maori people.

- He hauata – mate ki te wai
  - taka i te rākau (i whea rānei)
  - wera i te ahi
- He aituā – i ngā rori/i ngā waka (Māori/Pākehā)

- Accidents (predominately motor vehicle accidents) are responsible for the greatest percentage of potential years of working life lost for males of both races; for females, cancer contributes the highest percentage.

This section is a comparison of the number and rate of deaths registered in the years 1970-74 and 1980-84. The number of Maori deaths registered each year are comparatively small when they are presented by age-group and specific causes. To overcome the yearly fluctuation in rates which can occur when numbers are small, all deaths in each 5 year period have been combined. The numbers shown in tables 23-29 are therefore the total number of deaths for the 5 year period 1980-85.

The mean population numbers for each 5 year period were totalled and used to calculate age-specific death rates. Rates for infants (under 1 year of age) were calculated using the number of live births for each 5 year period.

CHANGES IN MORTALITY RATES 1970-74 and 1980-84

There was a marked reduction in Maori death rates between the years 1970-74 and 1980-84 in all age-groups except the postneonatal period (ages 1-11 months).

The Maori infant death rate reduced by 21% from 23. 3 per 1000 live births in 1970-74 to 18. 4 in 1980-84. The ratio of Maori to non-Maori infant deaths has however increased slightly during the two periods from 1. 5 to 1. 6.

The gap between Maori and non-Maori late fetal (stillbirth) and neonatal (ages under 1 month) death rates have been small over the past 15 years. On looking at rates for the single years 1970-1984 (Figures 7-12), the Maori late fetal death rate was lower than the non-Maori rate in 1973, 1975 and 1984. The Maori neonatal death rate was lower than the non-Maori rate in 1972, 1973 and 1984. In 1984, the Maori late fetal and neonatal rates were the lowest ever recorded in New Zealand by the Maori or non-Maori populations.

In the postneonatal period (ages 1-11 months) death rates increased for both races between the years 1970-74 and 1980-84. The Maori rate remained at more than twice that of non-Maoris. A reduction of 53 Maori deaths in the

TABLE 10

INFANT DEATHS (AGES UNDER 1 YEAR), 1970-74 AND 1980-84

Rates per 1000 live births

Years	Maori	Non-Maori	Ratio Maori to Non-Maori
1970-74	23.3	15.1	1.5
1980-84	18.4	11.4	1.6
% Change	-21	-25	

TABLE 11

LATE FETAL DEATHS (STILLBIRTHS), 1970-74 AND 1980-84

Rates per 1000 total births

Years	Maori	Non-Maori	Ratio Maori to Non-Maori
1970-74	10.2	9.6	1.1
1980-84	6.4	5.9	1.1
% Change	-37	-39	

TABLE 12

NEONATAL DEATHS (AGES UNDER 28 DAYS) 1970-74 AND 1980-84

Rates per 1000 live births

Years	Maori	Non-Maori	Ratio Maori to Non-Maori
1970-74	11.8	9.8	1.2
1980-84	6.2	5.4	1.1
% Change	-47	-45	

TABLE 13

POSTNEONATAL DEATHS (AGES 1-11 MONTHS) 1970-74 AND 1980-84
Rates per 1000 live births

Years	Maori	Non-Maori	Ratio Maori to Non-Maori
1970-74	11.5	5.3	2.2
1980-84	12.2	5.9	2.1
% Change	+6	+11	

1-11 month age-group would have been required to bring the 1984 postneonatal death rate to the non-Maori level which is itself high compared to other western countries.

Seventy-six percent of Maori infant deaths in 1984 occurred at ages 1-11 months compared to 57% of non-Maori infant deaths. Sudden infant death syndrome (cot death) is the leading cause of death in the postneonatal period accounting for 69% of Maori and 66% of non-Maori deaths at ages 1-11 months in 1984.

FIGURE 7

LATE FETAL DEATHS, RATES PER 1000 TOTAL BIRTHS, 1970–84

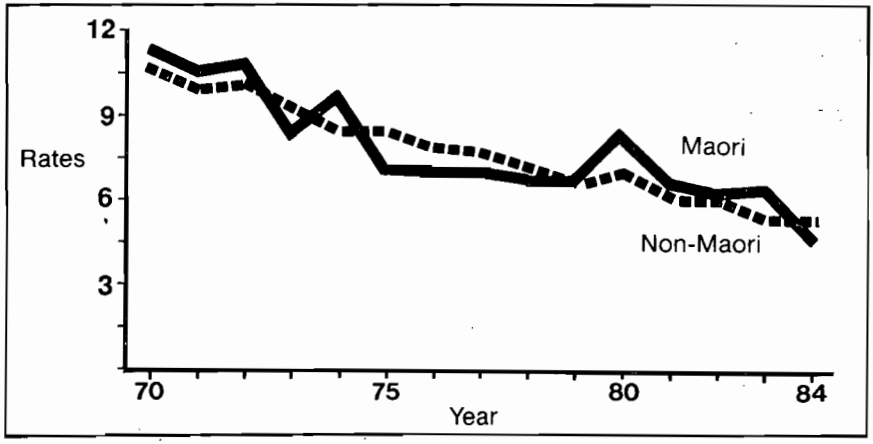


FIGURE 8

PERINATAL DEATHS, RATES PER 1000 TOTAL BIRTHS, 1970–84

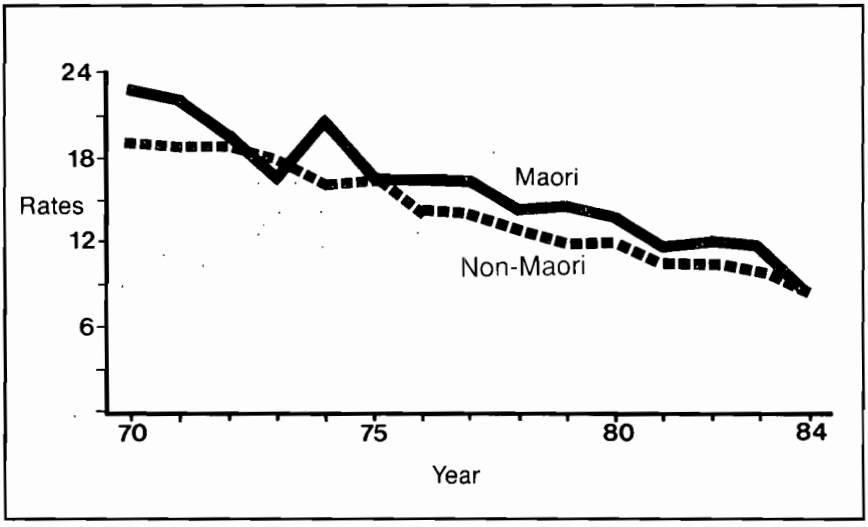


FIGURE 9

EARLY NEONATAL DEATHS, RATES PER 1000 LIVE BIRTHS, 1970-84

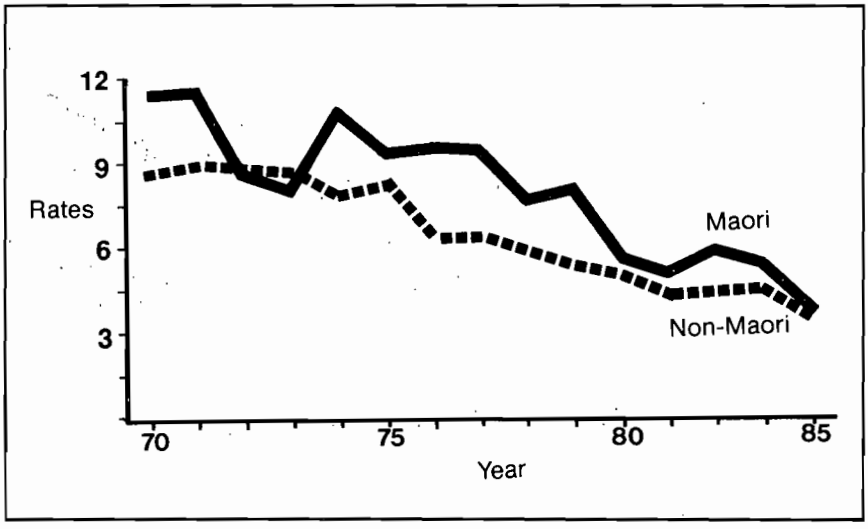


FIGURE 10

NEONATAL DEATHS, RATES PER 1000 LIVE BIRTHS, 1970–84

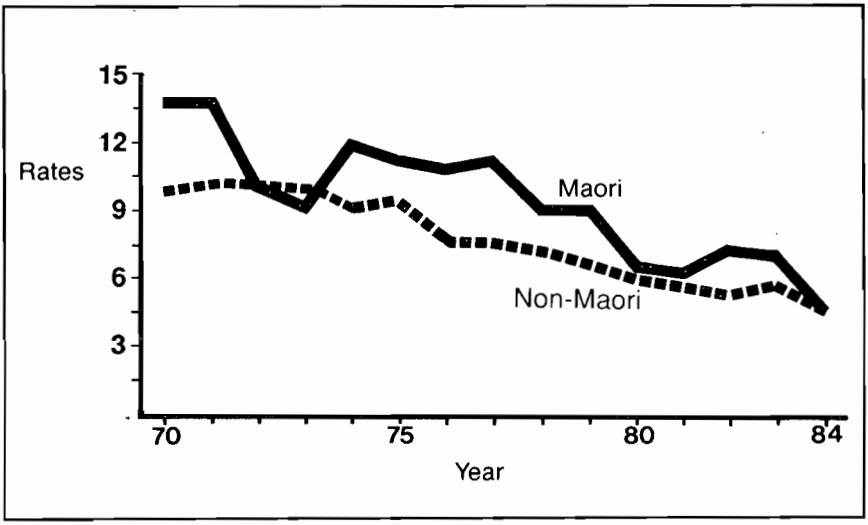


FIGURE 11

POSTNEONATAL DEATHS, RATES PER 1000 LIVE BIRTHS, 1970–84

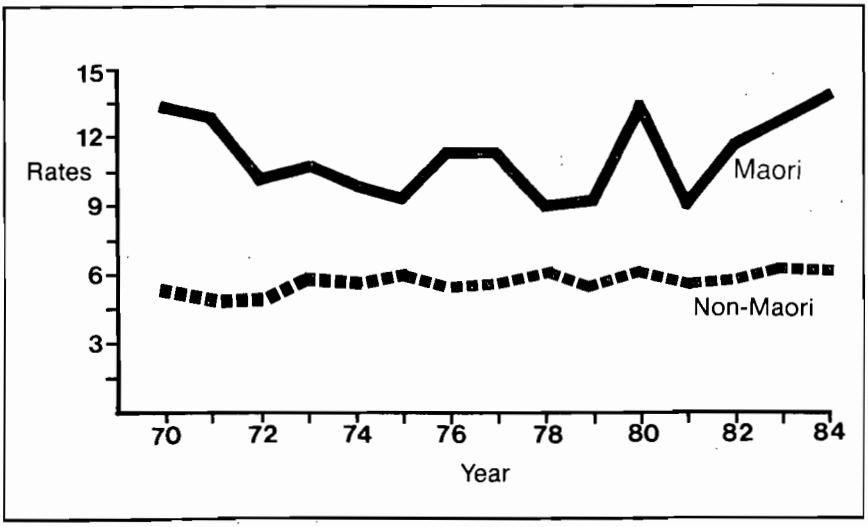
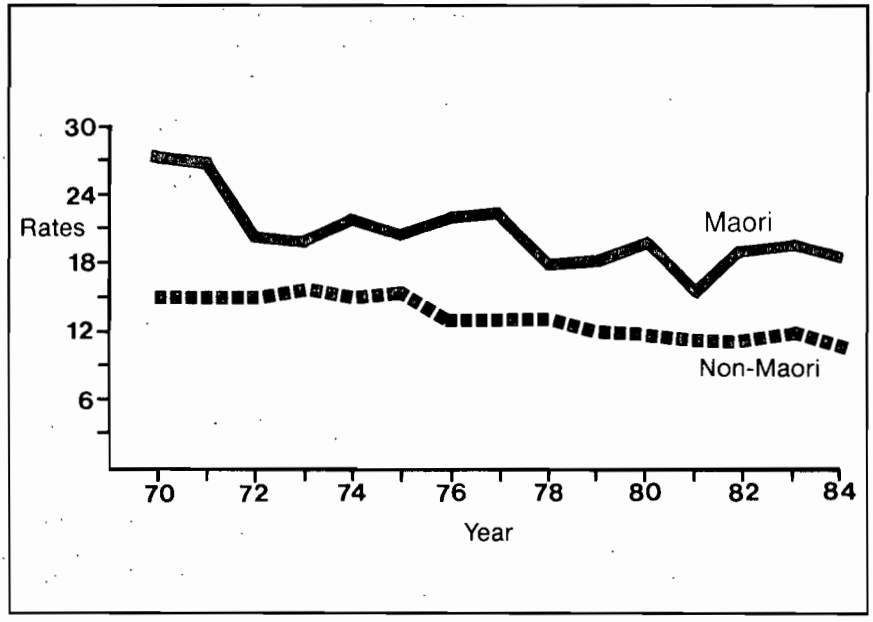


FIGURE 12

INFANT DEATHS, RATES PER 1000 LIVE BIRTHS, 1970–84



Between the periods 1970-74 and 1980-84, Maori male and female death rates at ages 1-14 years fell dramatically to a level below that experienced by the non-Maori population. At ages 15-24 years, Maori rates significantly decreased while non-Maori rates had increased slightly. The death rate for males aged 15-24 years was the same for both races in 1980-84. The difference between death rates in the Maori and non-Maori populations is highest at ages 25-64 years.

Death rates for females are lower at all age-groups for both races. This is most marked at ages 15-24 years where male rates are more than twice the female rates. This is chiefly due to the high number of male deaths as the result of motor vehicle accidents. At older ages coronary heart disease and cancer death rates are higher for males than for females.

The 1984 Maori death rates at ages 25 years and over would have equalled the non-Maori rate had there been 70 less Maori deaths at ages 25-44, 220 less at ages 45-64 and 83 less at ages 65 years and over.

TABLE 14

DEATHS, ALL CAUSES, ALL AGES, 1970-74 AND 1980-84
Age-standardised rates per 10,000 population

Years	Male		Ratio Maori to Non-Maori	Female		Ratio Maori to Non-Maori
	Maori	Non-Maori		Maori	Non-Maori	
1970-74	132.0	90.0	1.5	102.6	60.6	1.7
1980-84	102.3	78.4	1.3	71.3	52.7	1.4
% Change	-23	-13		-31	-13	

TABLE 15

DEATHS, ALL CAUSES, AGES 1-4 YEARS, 1970-74 AND 1980-84
Age-specific rates per 10,000 population

Years	Male		Ratio Maori to Non-Maori	Female		Ratio Maori to Non-Maori
	Maori	Non-Maori		Maori	Non-Maori	
1970-74	17.4	9.2	1.9	13.1	7.8	1.7
1980-84	6.2	7.7	0.8	5.2	5.5	0.9
% Change	-64	-16		-60	-29	

TABLE 16

DEATHS, ALL CAUSES, AGES 5-14 YEARS, 1970-74 AND 1980-84
Age-specific rates per 10,000 population

Years	Male		Ratio Maori to Non-Maori	Female		Ratio Maori to Non-Maori
	Maori	Non-Maori		Maori	Non-Maori	
1970-74	7.1	4.4	1.6	4.6	3.0	1.5
1980-84	3.2	3.5	0.9	2.3	2.4	1.0
% Change	-55	-20		-50	-20	

TABLE 17

DEATHS, ALL CAUSES, AGES 15-24 YEARS, 1970-74 AND 1980-84
Age-specific rates per 10,000 population

Years	Male		Ratio Maori to Non-Maori	Female		Ratio Maori to Non-Maori
	Maori	Non-Maori		Maori	Non-Maori	
1970-74	26.1	15.1	1.7	11.5	5.4	2.1
1980-84	15.2	15.2	1.0	7.3	6.1	1.2
% Change	-42	+1		-37	+13	

TABLE 18

DEATHS, ALL CAUSES, AGES 25-44 YEARS, 1970-74 AND 1980-84
Age-specific rates per 10,000 population

Years	Male		Ratio Maori to Non-Maori	Female		Ratio Maori to Non-Maori
	Maori	Non-Maori		Maori	Non-Maori	
1970-74	44.6	18.4	2.4	31.0	11.4	2.7
1980-84	28.9	16.1	1.8	19.1	9.3	2.1
% Change	-35	-13		-38	-18	

TABLE 19

DEATHS, ALL CAUSES, AGES 45-64 YEARS, 1970-74 AND 1980-84
Age-specific rates per 10,000 population

Years	Male		Ratio Maori to Non-Maori	Female		Ratio Maori to Non-Maori
	Maori	Non-Maori		Maori	Non-Maori	
1970-74	234.3	127.2	1.8	178.3	69.8	2.6
1980-84	175.5	109.1	1.6	123.3	63.2	2.0
% Change	-25	-14		-31	-9	

TABLE 20

DEATHS, ALL CAUSES, AGES 65 YEARS AND OVER, 1970-74 AND 1980-84

Age-specific rates per 10,000 population

Years	Male		Ratio Maori to Non-Maori	Female		Ratio Maori to Non-Maori
	Maori	Non-Maori		Maori	Non-Maori	
1970-74	890.9	750.5	1.2	735.0	556.9	1.3
1980-84	756.3	662.5	1.1	544.7	482.9	1.1
% Change	-15	-12		-26	-13	

TABLE 21

DEATHS, 1970-74 AND 1980-84

Age-standardised rates per 10,000 population

I.C.D. Chapter Headings	Maori		Non-Maori	
	1970-74	1980-84	1970-74	1980-84
Infectious and parasitic diseases	3.7	1.4	0.7	0.4
Neoplasms	20.7	18.3	14.3	14.9
Endocrine, nutritional and metabolic diseases and immunity disorders	5.3	4.5	1.6	1.1
Diseases of blood and blood forming organs	0.3	0.1	0.2	0.2
Mental disorders	0.4	0.3	0.2	0.5
Diseases of nervous system and sense organs	1.0	0.7	1.1	1.0
Diseases of circulatory system	50.0	37.8	36.6	29.5
Diseases of respiratory system	16.2	10.7	7.1	6.4
Diseases of digestive system	2.6	2.1	1.7	1.6
Diseases of genito-urinary system	2.6	1.5	0.9	0.8
Complication of pregnancy, childbirth and the puerperium*	0.4	—	0.1	—
Diseases of the skin and subcutaneous tissue	0.2	0.2	0.1	0.1
Diseases of musculo-skeletal system and connective tissue	0.3	0.2	0.4	0.3
Congenital anomalies	1.1	0.8	1.3	1.0
Certain conditions originating in the perinatal period	2.2	1.0	1.7	0.7
Symptoms, signs and ill-defined conditions	0.5	1.7	0.3	1.0
External causes of injury and poisoning	10.4	6.0	6.2	5.3
Total, all causes	117.5	87.2	74.3	64.6

* Female specific rates

— less than 0.1

Table 21 shows age-standardised death rates by the International Classification of Diseases chapter groupings in 1970-74 and 1980-84. Maori rates have decreased for all groupings except for "diseases of the skin and subcutaneous tissue"which have remained the same, and "symptoms, signs and ill-defined conditions" which have increased due to the inclusion of cot deaths in this category.

The improvement in Maori rates has been greater than for non-Maori. Overall, there has been a 25. 8% reduction in the Maori age-standardised death rate between 1970-74 and 1980-84 compared to a 13% reduction in the non-Maori rate.

MAJOR CAUSES OF DEATH BY AGE-GROUP, 1980-84

INFANTS UNDER 1 YEAR

The major cause of death in infants of both races in 1980-84 was sudden infant death syndrome (cot death), followed by perinatal causes (conditions originating in the first week of life and often associated with premature and low birthweight infants).

Maori rates were higher than those for non-Maori for all major causes except congenital anomalies. The Maori death rate for respiratory diseases (2. 7 per 1000 live births) was 3. 4 times higher than the non-Maori rate (0.8). Pneumonia accounted for 53 (60%) of the Maori respiratory deaths. The Maori cot death rate (6. 7) was almost twice as high as the non-Maori rate (3.6).

The cot deaths shown in Table 23 are those in which no other disease or condition was present at the time of death. Those cot deaths where the baby was also suffering from a mild respiratory infection are included under respiratory diseases. This is in accordance with World Health Organisation rules for coding cause of death (49).

The term sudden infant death syndrome or cot death was recognised internationally as a cause of death in 1969 (50). The rise in the number of recorded cases in the 1970s was probably an indication of the growing use of the term rather than an increase in incidence.

In 1970-74, the death rate recorded for cot death was 0. 2 per 1000 live births for both Maori and non-Maori infants. Deaths that would now be classified as cot deaths would have probably been recorded as respiratory or viral illness.

Table 22 includes all deaths certified as being due to cot death whether another condition was present or not. The Maori rates in 1984 and 1985 were twice the non-Maori rates.

TABLE 22

SUDDEN INFANT DEATH SYNDROME (COT DEATH) BY RACE, 1980-85
Numbers and rates per 1000 live births

Year	Maori		Non-Maori	
	Number	Rate	Number	Rate
1980	41	6.4	168	3.8
1981	41	6.2	181	4.1
1982	43	6.9	176	4.0
1983	51	8.1	198	4.5
1984	67	9.9	191	4.3
1985	51	7.9	168	3.7

Maori and non-Maori infant deaths due to perinatal causes have more than halved between the periods 1970-74 and 1980-84 and this is reflected in the current low neonatal death rates which compare favourably with the Scandinavian countries (51).

FIGURE 13

MAJOR CAUSES OF DEATH, MAORI POPULATION, 1980-84
(Infants aged under 1 year)

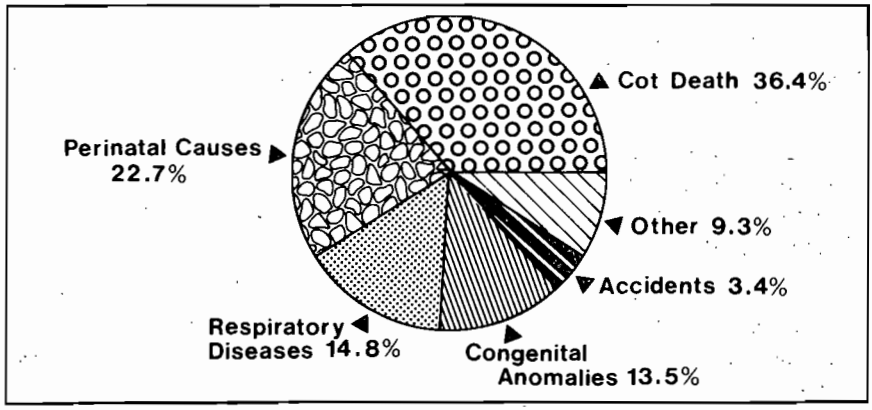


TABLE 23

MAJOR CAUSES OF DEATH: INFANTS AGED UNDER 1 YEAR, 1980-84
Numbers and rates per 1000 live births

Cause of Death	Maori			Non-Maori			Ratio
	Rank	No	Rate	Rank	No	Rate	M/N-M
Total: All causes		594	18.4		2513	11.4	1.6
Sudden infant death syndrome (cot death)*	1	216	6.7	1	792	3.6	1.9
Perinatal causes	2	135	4.2	2	665	3.0	1.4
Respiratory conditions of the newborn		55	1.7		316	1.4	1.2
Low birthweight conditions		33	1.0		107	0.5	2.0
Respiratory diseases	3	88	2.7	4	182	0.8	3.4
Pneumonia		53	1.6		130	0.6	2.7
Bronchitis and bronchiolitis		20	0.6		33	0.1	6.0
Congenital anomalies (defects present at birth)	4	80	2.5	3	654	3.0	0.8
Accidents and violence	5	20	0.6	5	58	0.3	2.0
Males: All causes		325	19.5		1440	12.7	1.5
Sudden infant death syndrome (cot death)*	1	123	7.4	1	497	4.4	1.7
Perinatal causes	2	64	3.8	2	382	3.4	1.1
Respiratory conditions of the newborn		23	1.4		185	1.6	0.9
Low birthweight conditions		18	1.1		59	0.5	2.2
Respiratory diseases	3	51	3.1	4	91	0.8	3.9
Pneumonia		32	1.9		64	0.6	3.2
Bronchitis and bronchiolitis		6	0.4		17	0.1	4.0
Congenital anomalies (defects present at birth)	4	42	2.5	3	346	3.0	0.8
Infectious and parasitic diseases	5	15	0.9		16	0.1	9.0
Accidents and violence		8	0.5	5	33	0.3	1.7
Females: All causes		269	17.2		1073	10.0	1.7
Sudden infant death syndrome (cot death)*	1	93	6.0	2	295	2.7	2.2
Perinatal causes	2	71	4.5	3	283	2.6	1.7
Respiratory conditions of the newborn		32	2.0		131	1.2	1.7
Low birthweight conditions		15	1.0		48	0.4	2.5
Congenital anomalies (defects present at birth)	3	38	2.4	1	308	2.9	0.8
Respiratory diseases	4	37	2.4	4	91	0.8	3.0
Pneumonia		21	1.3		66	0.6	2.2
Bronchitis and bronchiolitis		14	0.9		16	0.1	9.0
Accidents and violence	5	12	0.8	5=	25	0.2	4.0
Diseases of nervous system		10	0.6	5=	25	0.2	3.0

* Includes only those cases where no other disease or condition was present at time of death

AGES 1-4 YEARS

The Maori death rate in 1980-84 was 63% lower than in the period 1970-74. The non-Maori rate declined by 22% over the same period.

The substantial decline in Maori pre-schooler deaths since 1970-74 is due to a reduction in rates for cancer (77%), respiratory diseases, chiefly pneumonia (74%), heart disease (60%), congenital anomalies (58%), and accidents (50%). The motor vehicle accident rate more than halved from 2. 5 to 1. 2 per 10,000 and drowning reduced by 30% from 1. 1 to 0. 7. In contrast, the non-Maori motor vehicle accident rate remained unchanged at 1. 4 per 10,000 and drownings increased by 63% from 0. 8 to 1. 3.

Maori pre-schooler death rates in 1980-84 were lower than non-Maori rates for all major causes of death except respiratory and heart diseases. Accidents were the leading cause of death with males accounting for 64% of both Maori and non-Maori accidental deaths.

Motor vehicle accidents (44%) and drowning (25%) were the leading contributers to Maori pre-schooler accidental deaths. In non-Maori fatal accidents, the leading contributors were reversed with drowning 40% and motor vehicle accidents 35% of the total.

Half of the respiratory deaths in Maori 1-4 year olds were due to pneumonia; 2 deaths (16. 7%) were due to asthma. Two of the 4 Maori heart disease deaths were due to acute myocarditis.

FIGURE 14

MAJOR CAUSES OF DEATH, MAORI POPULATION, 1980-84
(Ages 1-4 years)

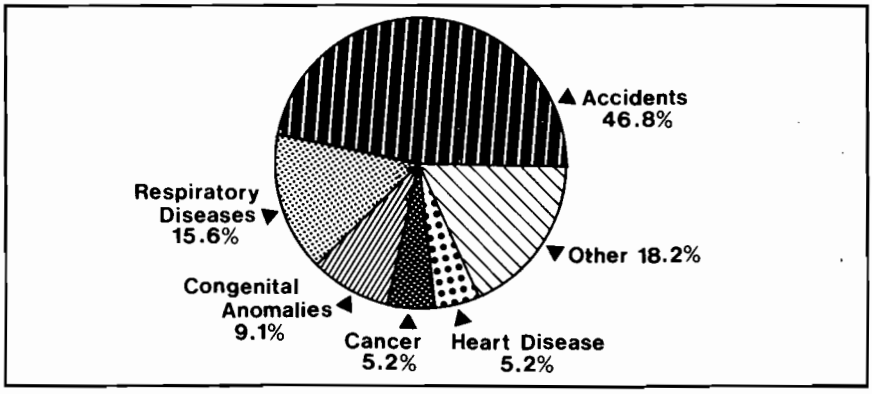


TABLE 24

MAJOR CAUSES OF DEATH: AGES 1-4 YEARS, 1980-84
Numbers and age-specific rates per 10,000 population

Cause of Death	Maori			Non-Maori			Ratio
	Rank	No	Rate	Rank	No	Rate	M/N-M
Total: All causes		77	5.7		579	6.6	0.9
Accidents	1	36	2.7	1	272	3.1	0.9
Motor vehicle accidents		16	1.2		89	1.0	1.2
Drowning		9	0.7		110	1.3	0.5
Respiratory diseases	2	12	0.9	4=	34	0.4	2.3
Pneumonia		6	0.4		15	0.2	2.0
Asthma		2	0.1		2	0.02	5.0
Congenital anomalies (defects present at birth)	3	7	0.5	2	85	1.0	0.5
Malignant neoplasms (cancer)	4=	4	0.3	3	64	0.7	0.4
Heart disease	4=	4	0.3		8	0.1	3.0
Diseases of the nervous system		3	0.2	4=	34	0.4	0.5
Males: All causes		43	6.2		344	7.7	0.8
Accidents	1	23	3.3	1	175	3.9	0.8
Motor vehicle accidents		8	1.2		54	1.2	1.0
Drowning		6	0.9		75	1.7	0.5
Respiratory diseases	2	6	0.9	4	23	0.5	1.8
Pneumonia		2	0.3		11	0.2	1.5
Asthma		1	0.1		2	0.04	2.5
Congenital anomalies (defects present at birth)	3	4	0.6	2	43	1.0	0.6
Malignant neoplasms (cancer)	4=	3	0.4	3	37	0.8	0.5
Heart disease	4=	3	0.4		4	0.1	4.0
Diseases of the nervous system		–	–	5	18	0.4	–
Females: All causes		34	5.2		235	5.5	0.9
Accidents	1	13	2.0	1	97	2.3	0.9
Motor vehicle accidents		8	1.2		35	0.8	1.5
Drowning		3	0.5		35	0.8	0.6
Respiratory diseases	2	6	0.9	5	11	0.3	3.0
Pneumonia		4	0.6		3	0.1	6.0
Asthma		1	0.2		–	–	–
Congenital anomalies (defects present at birth)	3=	3	0.5	2	42	1.0	0.5
Diseases of the nervous system	3=	3	0.5	4	16	0.4	1.3
Malignant neoplasms (cancer)		1	0.2	3	27	0.6	0.3

AGES 5-14 YEARS

The Maori death rate for 5-14 year olds has declined by 54% since 1970-74 to a level below that for non-Maori in 1980-84. The improvement is mainly due to an 86% drop in the rate for accidental drownings from 0. 7 to 0. 1 per 10,000 and a 47% drop in the rate for motor vehicle accidents from 1. 7 to 0.1. In contrast, the non-Maori death rate for drowning remained the same at 0.2 and the motor vehicle accident rate dropped 22% from 0. 9 to 0. 7.

In 1980-84, accidents were the major cause of death for boys and girls of both races with motor vehicle accidents being the greatest contributor (67% of Maori and 59% of non-Maori accidental deaths).

Compared to 1970-74, asthma death rates in 1980-84 remained the same for non-Maori but were 3 times higher for Maori 5-14 year olds. The number of Maori asthma deaths increased from 2 (0. 1 per 10 000) in 1970-74 to 10 (0.3 per 10 000) in 1980-84. Death rates from suicide were the same for both races in 1970-74 and 1980-84.

FIGURE 15

MAJOR CAUSES OF DEATH, MAORI POPULATION, 1980-84
(Ages 5-14 years)

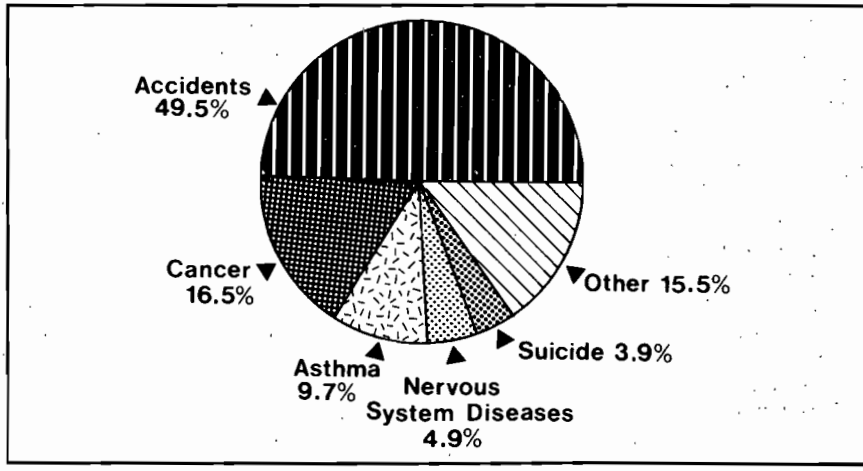


TABLE 25

MAJOR CAUSES OF DEATH: AGES 5-14 YEARS, 1980-84
Numbers and age-specific rates per 10,000 population

Cause of Death	Maori			Non-Maori			Ratio
	Rank	No	Rate	Rank	No	Rate	M/N-M
Total: All causes		103	2.7		748	2.9	0.9
Accidents	1	51	1.4	1	320	1.3	1.1
Motor vehicle accidents		34	0.9		188	0.7	1.3
Drowning		5	0.1		49	0.2	0.5
Malignant neoplasms (cancer)	2	17	0.5	2	134	0.5	1.0
Asthma	3	10	0.3	5	34	0.1	3.0
Diseases of the nervous system	4	5	0.1	3	56	0.2	0.5
Suicide	5	4	0.1		11	0.04	2.5
Congenital anomalies (defects present at birth)		2	0.1	4	53	0.2	0.5
Males: All causes		60	3.2		453	3.5	0.9
Accidents	1	33	1.7	1	202	1.6	1.1
Motor vehicle accidents		20	1.1		110	0.8	1.4
Drowning		5	0.3		31	0.2	1.5
Malignant neoplasms (cancer)	2	13	0.7	2	82	0.6	1.2
Asthma	3	5	0.3	4	22	0.2	1.5
Diseases of the nervous system	4	2	0.1	3	33	0.3	0.3
Congenital anomalies (defects present at birth)		1	0.1	5	18	0.1	1.0
Females: All causes		43	2.3		295	2.4	1.0
Accidents	1	18	1.0	1	118	0.9	1.1
Motor vehicle accidents		14	0.8		78	0.6	1.3
Drowning		–	–		18	0.1	–
Asthma	2	5	0.3	5	12 0	.1	3.0
Malignant neoplasms (cancer)	3	4	0.2	2	52	0.4	0.5
Suicide	4=	3	0.2		–	–	–
Diseases of the nervous system	4=	3	0.2	4	23	0.2	1.0
Congenital anomalies (defects present at birth)		1	0.1	3	35	0.3	0.3

AGES 15-24 YEARS

The Maori death rates in 1980-84 were the same as the non-Maori for males and 1.2 times greater than the non-Maori for females. Overall there has been a 40% reduction in the Maori death rate since 1970-74. Over the same period the non-Maori death rate has increased by 4%. The improvement in the Maori rate is due to a 47% reduction in motor vehicle accidents from 8.6 to 4.6 per 10,000 and a 21% reduction in the cancer death rate from 1.4 to 1.1.

Males accounted for 74% of the Maori deaths in this age-group and 77% of the non-Maori deaths in 1980-84. This was due to the high number of males dying as the result of motor vehicle accidents (116 Maori and 979 non-Maori males). In contrast, although it was also the leading cause of death, 41 Maori and 289 non-Maori females died as the result of motor vehicle accidents.

The second leading cause of death for Maori 15-24 year olds in 1980-84 was cancer, the major sites being bone, connective tissue and lymphomas.

The Maori death rate for chronic rheumatic heart disease (0. 3) was 3 times higher than the non-Maori rate (0. 1). In 1970-74, however, the Maori rate (1.0) was 9 times higher than the non-Maori rate (0. 1).

Death rates for asthma have increased in both races since 1970-74 when the Maori rate was 0. 4 and the non-Maori rate 0. 2. By 1980-84, the Maori asthma rate had risen by 25% to 0. 5 and the non-Maori rate by 50% to 0. 4.

Male deaths due to suicide have increased since 1970-74, mainly in non-Maori. Maori male suicides totalled 10 (0. 4 per 10,000) in 1970-74 and 17 (1.0) in 1980-84. In contrast, non-Maori male suicides totalled 121 (0. 5) in 1970-74 and 258 (1. 9) in 1980-84, the increase being mainly in the 20-24 year age-group. Female suicide rates have remained fairly constant over the same period.

FIGURE 16

MAJOR CAUSES OF DEATH, MAORI POPULATION, 1980-84
(Ages 15-24 Years)

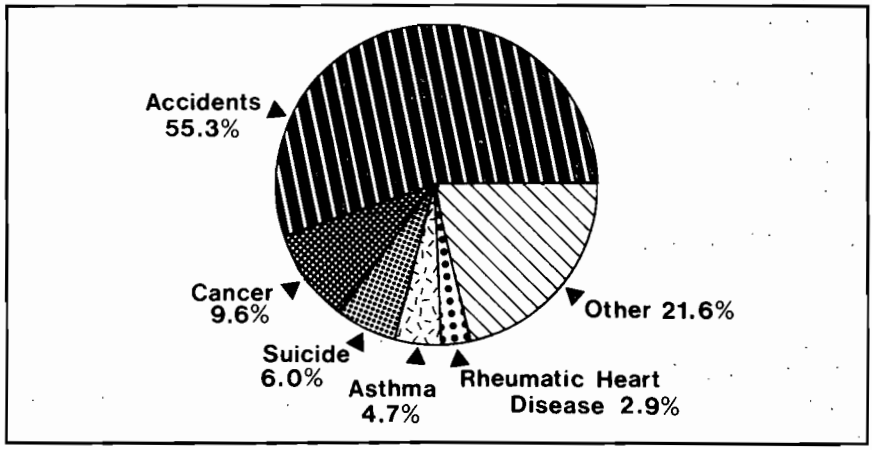


TABLE 26

MAJOR CAUSES OF DEATH: AGES 15-24 YEARS, 1980-84
Numbers and age-specific rates per 10,000 population

Cause of Death	Maori			Non-Maori			Ratio
	Rank	No	Rate	Rank	No	Rate	M/N-M
Total: All causes		385	11.3		2791	10.8	1.0
Accidents	1	213	6.3	1	1678	6.5	1.0
Motor vehicle accidents		157	4.6		1268	4.9	0.9
Malignant neoplasms (cancer)	2	37	1.1	3	218	0.8	1.0
All forms of heart disease	3=	23	0.7	5	87	0.3	1.4
Rheumatic heart disease		14	0.4		11	0.04	10.0
Suicide	3=	23	0.7	2	323	1.2	0.6
Asthma	5	18	0.5	4	92	0.4	1.3
Males: All causes		262	15.2		2016	15.2	1.0
Accidents	1	165	9.6	1	1321	10.0	1.0
Motor vehicle accidents		116	6.7		979	7.4	0.9
Malignant neoplasms (cancer)	2	20	1.2	3	121	0.9	1.3
Suicide	3	17	1.0	2	258	1.9	0.5
All forms of heart disease	4	11	0.6	4	40	0.3	2.0
Rheumatic heart disease		6	0.3		5	0.04	7.5
Homicide	5	8	0.5		27	0.2	2.5
Asthma		7	0.4	5	38	0.3	1.3
Females: All causes		123	7.3		775	6.1	1.2
Accidents	1	49	2.9	1	356	2.8	1.0
Motor vehicle accidents		41	2.4		289	2.3	1.0
Malignant neoplasms (cancer)	2	17	1.0	2	97	0.8	1.3
All forms of heart disease	3	12	0.7	5	47	0.4	1.8
Rheumatic heart disease		5	0.3		9	0.07	4.3
Asthma	4	11	0.7	4	54	0.4	1.8
Suicide	5	6	0.4	3	65	0.5	0.8

AGES 25-44 YEARS

The Maori death rate for the 25-44 year age-group in 1980-84, shows an improvement of 37% on the 1970-74 rate. This is mainly due to a reduction in death rates from accidents (44%), respiratory diseases (28%) and coronary heart disease (22%). In 1970-74, the leading cause of death for Maori aged 25-44 years was accidents with a rate of 9. 4 per 10 000 population. The decrease to 5. 3 in 1980-84 was due to a reduction in male motor vehicle accident fatalities.

For both races the leading cause of death for males in 1980-84 was accidents (chiefly motor vehicle) and for females cancer. Maori death rates were higher than non-Maori rates for all major causes except suicide where the non-Maori rate was 1. 4 times higher.

The leading sites for Maori female cancer deaths were breast (26), cervix (22) and stomach (16). Cancer was the second leading cause of death for Maori males and the leading sites were lung (12), leukaemia (11) and stomach (7).

In 1980-84, the Maori respiratory death rate (2. 3) was 3. 8 times higher than non-Maori rate (0. 6). Asthma accounted for 43 (54%) of the Maori respiratory deaths and bronchiectasis for 12 (15%).

The Maori cerebrovascular disease death rate (2. 1) was more than 4 times higher than the non-Maori rate (0. 5) while the Maori coronary heart disease rate (2. 9) was more than twice the non-Maori rate (1. 3). For Maori females, the coronary heart disease rate (1. 4) was 3. 5 times higher than the non-Maori female rate (0. 4).

FIGURE 17

MAJOR CAUSES OF DEATH, MAORI POPULATION, 1980-84
(Ages 25-44 years)

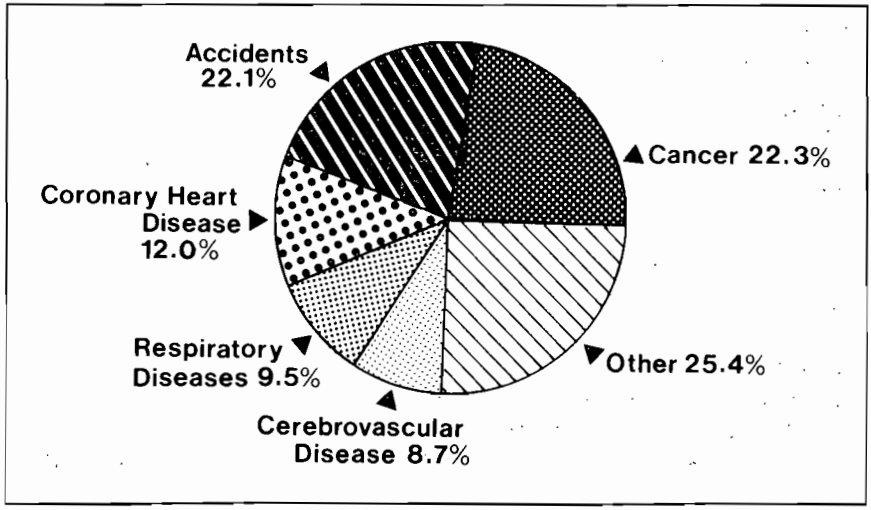


TABLE 27

MAJOR CAUSES OF DEATH: AGES 25-44 YEARS, 1980-84
Numbers and age-specific rates per 10,000 population

Cause of Death	Maori			Non-Maori			Ratio
	Rank	No	Rate	Rank	No	Rate	M/N-M
Total: All causes		828	24.0		5110	12.7	1.9
Malignant neoplasms (cancer)	1	185	5.4	1	1387	3.4	1.6
Cancer of stomach		23	0.7		56	0.1	7.0
Cancer of lung		18	0.5		69	0.2	2.5
Leukaemia		17	0.5		101	0.3	1.7
Accidents	2	183	5.3	2	1227	3.0	1.8
Motor vehicle accidents		124	3.6		677	1.7	2.1
Coronary heart disease (heart attack)	3	99	2.9	4	539	1.3	2.2
Respiratory diseases	4	79	2.3	5	227	0.6	3.8
Asthma		43	1.2		142	0.4	3.0
Bronchiectasis		12	0.3		14	0.03	10.0
Cerebrovascular disease (stroke)	5	72	2.1		210	0.5	4.2
Suicide		35	1.0	3	566	1.4	0.7
Males: All causes		493	28.9		3246	16.1	1.8
Accidents	1	143	8.4	1	999	5.0	1.7
Motor vehicle accidents		96	5.6		530	2.6	2.2
Malignant neoplasms (cancer)	2	76	4.5	2	612	3.0	1.5
Cancer of lung		12	0.7		45	0.2	3.5
Cancer of stomach		7	0.4		29	0.1	4.0
Leukaemia		11	0.6		62	0.3	2.0
Coronary heart disease (heart attack)	3	74	4.3	3	450	2.2	2.0
Respiratory diseases	4	38	2.2	5	121	0.6	3.7
Asthma		18	1.1		73	0.4	2.8
Suicide	5	25	1.5	4	420	2.1	0.7
Females: All causes		335	19.1		1864	9.3	2.1
Malignant neoplasms (cancer)	1	109	6.2	1	775	3.8	1.6
Cancer of breast		26	1.5		212	1.1	1.4
Cancer of cervix		22	1.3		91	0.5	2.6
Cancer of stomach		16	0.9		27	0.1	9.0
Cancer of lung		6	0.3		24	0.1	3.0
Leukaemia		6	0.3		39	0.2	1.5
Respiratory diseases	2	41	2.3	5	106	0.5	4.6
Asthma		25	1.4		69	0.3	4.7
Accidents	3	40	2.3	2	228	1.1	2.1
Motor vehicle accidents		28	1.6		147	0.7	2.3
Coronary heart disease (heart attack)	4	25	1.4		89	0.4	3.5
Cerebrovascular disease (stroke)	5	24	1.4	4	109	0.5	2.8
Suicide		9	0.5	3	146	0.7	0.7

AGES 45-64 YEARS

At ages 45-64 years, the Maori death rate has decreased by 28% between 1970-74 and 1980-84 affecting all major causes. The greatest reductions were in cerebrovascular disesase (39%), respiratory diseases (33%), coronary heart disease (26%) and all other heart disease (26%).

Despite the improvement in Maori death rates in 1980-84, they remained higher than non-Maori rates for all major causes. The leading cause for both races was cancer followed by coronary heart disease and respiratory diseases.

At this age-group, males accounted for 52% of the Maori cancer deaths and 54% of the the non-Maori. The leading site for Maori and non-Maori males was the lung (133 Maori and 1407 non-Maori deaths). Lung was also the leading site for Maori females (82) while for non-Maori females it was the breast (1036).

Over half (113) of the Maori respiratory deaths (excluding lung cancer) were due to chronic obstructive respiratory disease including bronchitis and emphysema, and asthma accounted for 23% (51 deaths).

FIGURE 18

MAJOR CAUSES OF DEATH, MAORI POPULATION, 1980-84
(Ages 45-64 years)

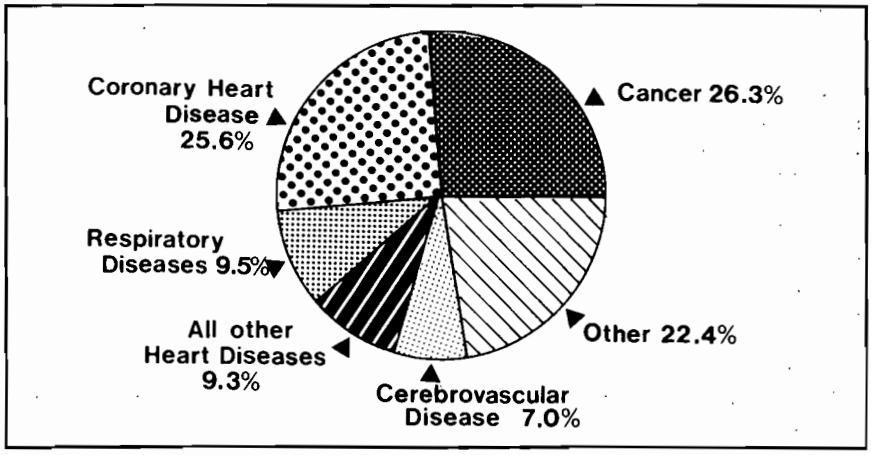


TABLE 28

MAJOR CAUSES OF DEATH: AGES 45-64 YEARS, 1980-84

Numbers and age-specific rates per 10,000 population

Cause of Death	Maori			Non-Maori			Ratio
	Rank	No	Rate	Rank	No	Rate	M/N-M
Total: All causes		2300	149.1		23625	86.3	1.7
Malignant neoplasms (cancer)	1	604	39.2	1	8299	30.3	1.3
Cancer of lung		215	13.9		1848	6.7	2.1
Cancer of stomach		45	2.9		378	1.4	2.1
Cancer of colon		17	1.1		925	3.4	0.3
Coronary heart disease (heart attack)	2	588	38.1	2	7470	27.3	1.4
Respiratory diseases	3	218	14.1	3	1533	5.6	2.5
Chronic obstructive respiratory disease		113	7.3		830	3.0	2.4
All other forms of heart disease	4	213	13.8	5	800	2.9	4.8
Hypertensive heart disease		48	3.1		130	0.5	6.2
Rheumatic heart disease		36	2.3		136	0.5	4.6
Cerebrovascular disease (stroke)	5	161	10.4	4	1504	5.5	1.9
Males: All causes		1338	175.5		14990	109.1	1.6
Coronary heart disease (heart attack)	1	390	51.1	1	5756	41.9	1.2
Malignant neoplasms (cancer)	2	314	41.2	2	4457	32.4	1.3
Cancer of lung		133	17.4		1407	10.2	1.7
Cancer of stomach		29	3.8		271	2.0	1.9
All other forms of heart disease	3	128	16.8	5	510	3.7	4.5
Hypertensive heart disease		24	3.1		70	0.5	6.2
Rheumatic heart disease		10	1.3		55	0.4	3.3
Respiratory diseases	4	110	14.4	3	969	7.1	2.0
Chronic obstructive respiratory disease		58	7.6		560	4.1	1.9
Diabetes	5	80	10.5		184	1.3	8.1
Cerebrovascular disease (stroke)		69	9.0	4	803	5.8	1.6
Females: All causes		962	123.3		8635	63.2	2.0
Malignant neoplasms (cancer)	1	290	37.2	1	3842	28.1	1.3
Cancer of lung		82	10.5		441	3.2	3.3
Cancer of breast		62	7.9		1036	7.6	1.0
Cancer of cervix		36	4.6		159	1.2	3.8
Coronary heart disease (heart attack)	2	198	25.4	2	1714	12.6	2.0
Respiratory diseases	3	108	13.8	4	564	4.1	3.4
Chronic obstructive respiratory disease		55	7.1		270	2.0	3.6
Cerebrovascular disease (stroke)	4	92	11.8	3	701	5.1	2.3
All other forms of heart disease	5	85	8.8	5	290	2.1	4.2
Hypertensive heart disease		24	3.1		60	0.4	7.8
Rheumatic heart disease		26	3.3		81	0.6	5.5

The Maori death rate for coronary heart disease (38. 1) was 1. 4 times higher than the non-Maori rate (27. 3). However, the Maori female rate for coronary heart disease (25. 4) was twice as high as the non-Maori female rate (12. 6) while the Maori male rate (51. 1) was just 1. 2 times higher than the non-Maori male rate (41. 9).

The Maori death rate for all other heart disease including rheumatic and hypertensive (13. 8) was 4. 8 times higher than the non-Maori rate (2. 9).

AGES 65 YEARS AND OVER

At ages 65 years and over, the Maori death rate decreased by 25% between 1970-74 and 1980-84. Death rates for all major causes fell with the greatest reductions being in respiratory diseases (31%), all other heart disease (30%) and coronary heart disease (21%).

In 1980-84, the two leading causes for both races were coronary heart disease and cancer. The Maori male rate for coronary heart disease (215. 8) was a little lower than the non-Maori rate (221. 2) while for females the Maori rate (152. 5) was 11% higher than the non-Maori rate (137. 7).

The leading cancer sites for Maori males were the lung (99) and stomach (34). For Maori females, the leading sites were the lung (63) and breast (23).

In non-Maori males the leading cancer sites were lung (2828) followed by prostate (1330) and in non-Maori females they were breast (1189) followed by colon (1143).

FIGURE 19

MAJOR CAUSES OF DEATH, MAORI POPULATION, 1980-84
(Ages 65 years and over)

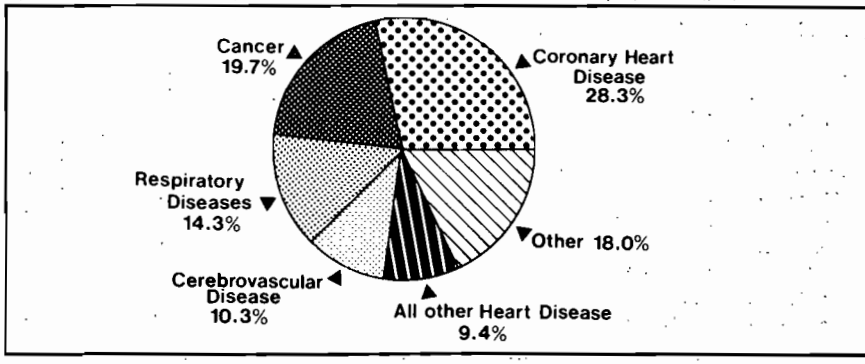


TABLE 29

MAJOR CAUSES OF DEATH: AGES 65 YEARS AND OVER, 1980-84

Numbers and age-specific rates per 10,000 population

Cause of Death	Maori			Non-Maori			Ratio
	Rank	No	Rate	Rank	No	Rate	M/N-M
Total: All causes		2251	645.0		86868	558.4	1.2
Coronary heart disease (heart attack)	1	637	182.5	1	26882	172.8	1.1
Malignant neoplasms (cancer)	2	444	127.2	2	17194	110.5	1.2
Cancer of lung		162	46.4		3670	23.6	2.0
Cancer of stomach		53	15.2		1165	7.5	2.0
Cancer of colon		14	4.0		1976	12.7	0.3
Respiratory diseases	3	322	92.3	4	10627	68.3	1.4
Chronic obstructive respiratory disease		161	46.1		4393	28.2	1.6
Cerebrovascular disease (stroke)	4	231	66.2	3	12447	80.0	0.8
All other forms of heart disease	5	212	60.7	5	5213	33.5	1.8
Hypertensive heart disease		46	13.2		795	5.1	2.6
Rheumatic heart disease		18	5.2		366	2.4	2.2
Males: All causes		1251	756.3		43342	662.5	1.1
Coronary heart disease (heart attack)	1	357	215.8	1	14472	221.2	1.0
Malignant neoplasms (cancer)	2	251	151.8	2	9496	145.2	1.0
Cancer of lung		99	59.9		2828	43.2	1.4
Cancer of stomach		34	20.6		680	10.4	2.0
Cancer of prostate		32	19.3		1330	20.3	1.0
Respiratory diseases	3	197	119.1	3	6029	92.2	1.3
Chronic obstructive respiratory disease		108	65.3		3343	51.1	1.3
All other forms of heart disease	4	116	70.1	5	2052	31.4	2.2
Hypertensive heart disease		19	11.5		303	4.6	2.5
Rheumatic heart disease		9	5.4		126	1.9	2.8
Cerebrovascular disease (stroke)	5	104	62.9	4	4844	74.0	0.9
Females: All causes		1000	544.7		43526	482.9	1.1
Coronary heart disease (heart attack)	1	280	152.5	1	12410	137.7	1.1
Malignant neoplasms (cancer)	2	193	105.1	2	7698	85.4	1.2
Cancer of lung		63	34.3		842	9.3	3.7
Cancer of breast		23	12.5		1189	13.2	0.9
Cancer of stomach		19	10.3		485	5.4	1.9
Cancer of cervix		10	5.4		167	1.9	2.8
Cerebrovascular disease (stroke)	3	127	69.2	3	7603	84.3	0.8
Respiratory diseases	4	125	68.1	4	4598	51.0	1.3
Chronic obstructive respiratory disease		53	28.9		1050	11.6	2.5
All other forms of heart disease	5	96	52.3	5	3161	35.1	1.5
Hypertensive heart disease		27	14.7		492	5.5	2.7
Rheumatic heart disease		9	4.9		240	2.7	1.8

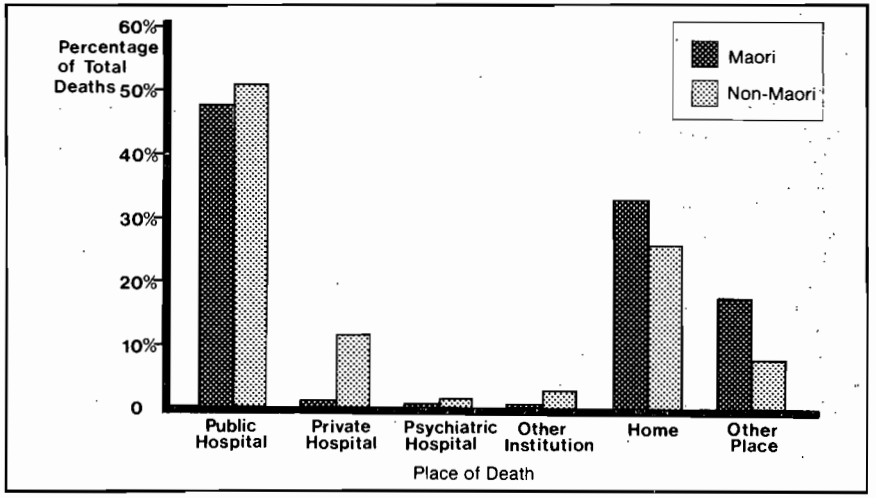
The greatest difference in Maori and non-Maori rates was for the category all other heart disease. The Maori male rate (70. 1) was more than twice the non-Maori male rate (31. 4). The Maori female rate (52. 3) was 1. 5 times higher than the non-Maori female rate (35. 1).

PLACE OF DEATH

Figure 20 shows the place where death occurred in 1984. Forty-eight percent of Maori and 51% of non-Maori deaths occurred in public hospitals. Very few Maori deaths occurred in private or psychiatric hospitals or other institutions. Conversely, there were more Maori than non-Maori deaths occurring at home or other places.

FIGURE 20

PLACE OF DEATH BY RACE, 1984

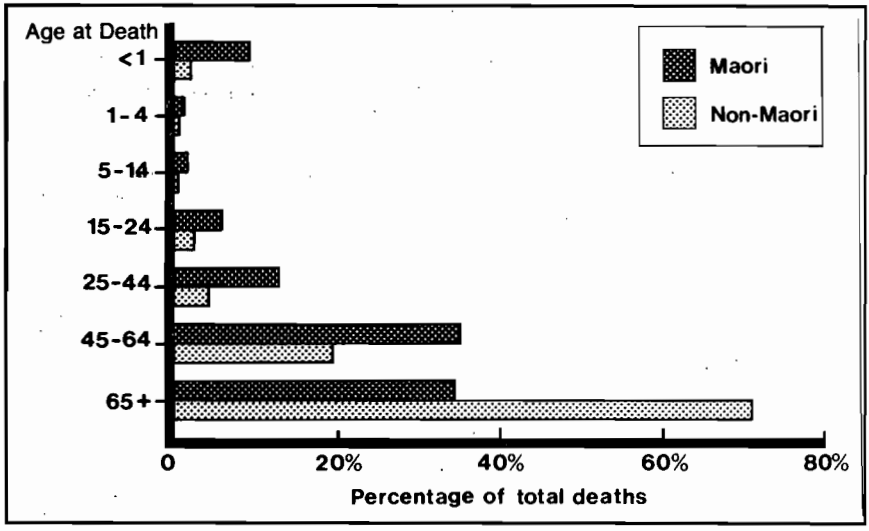


AGE AT DEATH

Figure 21 shows the percentage of deaths occurring at each age-group in the years 1980-84. Only 34% of Maori deaths occurred at ages 65 years and over compared to 71% of non-Maori deaths. The percentage of Maori deaths occurring at all other age-groups was higher than for non-Maori.

FIGURE 21

PERCENTAGE OF DEATHS BY AGE AND RACE, 1980-84



POTENTIAL YEARS OF WORKING LIFE LOST

To give an indication of the impact on society that deaths at younger ages have, the number of potential years of working life lost (PYWLL) by cause and sex for the Maori population in 1970 and 1984 are presented in Tables (30) and (31). They have been calculated by summing overall the number of potential years of working life lost because death occurred before the age of 65.

In 1984, accidents (chiefly motor vehicle accidents) were responsible for the largest percentage of PYWLL for Maori males. Heart disease and cancer ranked second and third but the proportion of PYWLL for each was much lower than for all accidents combined.

For females, cancer was responsible for the largest percentage of PYWLL. All accidents combined (motor vehicle accidents making up the highest percentage) and heart disease ranked second equal.

Comparing PYWLL in 1970 with 1984, reflects the significant reduction in Maori deaths from respiratory diseases, perinatal conditions and infectious diseases over the time period. Conversely, the percentage of Maori PYWLL due to motor vehicle accidents and female cancer has greatly increased.

TABLE 30

POTENTIAL YEARS OF WORKING LIFE LOST, MAORI POPULATION, 1970

Cause of death	Males		Females		Total	
	PYWLL	% of total	PYWLL	% of total	PYWLL	% of total
Accidents and violence						
Motor vehicle accidents	2252	14	557	5	2809	10
Other accidents	2524	15	560	5	3084	11
Suicide	259	2	46	—	305	1
Homicide	217	1	315	3	532	2
Cancer	1317	8	1070	9	2387	8
Vascular diseases						
Heart disease	2044	13	1338	11	3382	12
Cerebrovascular disease	210	1	380	3	590	2
Other vascular diseases	122	1	175	1	297	1
Respiratory diseases	2490	15	2684	22	5174	18
Congenital anomalies	826	5	573	5	1399	5
Perinatal conditions	1980	12	1845	15	3825	13
Infectious diseases	824	5	742	6	1566	6
All other causes	1255	8	1818	15	3073	11
Total, all causes	16320	100	12103	100	28423	100

— Less than 0.5

DISCUSSION

Mortality statistics are a helpful guide to health trends and specific health problems within a given population. Furthermore, infant mortality rates are regarded as a sensitive indicator of the social and economic conditions under which children live (52), which is particularly relevant given the gross disadvantages of many Maori families. Mortality statistics on their own, however, have a limited value for they give no indication as to the overall health experience of a community, and may indeed suggest misleading trends.

The overall Maori age-standardised death rate has fallen by over 25% between the periods 1970-74 and 1980-84. This is a substantial improvement and over twice that seen in the non-Maori population. This overall decrease in mortality is also commensurate with an increased life expectancy from birth in Maori people. These figures do not tell us however that the overall

TABLE 31

POTENTIAL YEARS OF WORKING LIFE LOST, MAORI POPULATION, 1984

Cause of death	Males		Females		Total	
	PYWLL	% of total	PYWLL	% of total	PYWLL	% of total
Accidents and violence						
Motor vehicle accidents	2204	19	756	10	2960	16
Other accidents	1059	9	287	4	1346	7
Suicide	516	4	206	3	722	4
Homicide	140	1	44	1	184	1
Cancer	118	9	1288	18	2406	13
Vascular diseases						
Heart disease	1650	14	1010	14	2660	14
Cerebrovascular disease	249	2	294	4	543	3
Other vascular diseases	118	1	64	1	182	1
Respiratory diseases	1037	9	797	11	1834	10
Congenital anomalies	370	3	425	6	795	4
Perinatal conditions	675	6	360	5	1035	5
Infectious diseases	164	1	28	—	192	1
All other causes	2505	21	1648	23	4153	22
Total, all causes	11805	100	7207	100	19012	100

— Less than 0.5

burden of ill-health as gauged by rates of hospitalisation has increased markedly in Maori people.

Total infant death rates in New Zealand are high by world standards, and Maori rates are still appreciably higher than non-Maori rates (51). Furthermore, the relative differences between the Maori and non-Maori rates has actually increased slightly in the decade to 1980-84. The major contributor in both Maori and non-Maori groups to infant mortality lies in the high cot death rates, which for Maori infants are on average nearly twice that of non-Maori infants. The cot death situation in New Zealand is of major concern, particularly for the Maori community. There is an urgent need to define those environmental factors which may be important risk factors contributing to the excess Maori infant deaths. It is known, for instance, that there are proportionately more low birthweight Maori babies, that there is a high prevalence of smoking amongst Maori women and "parenting" is increasingly a responsibility of the young, unmarried, unskilled Maori mother. In

contrast to the rather depressing cot death statistics, there have been substantial improvements in Maori and non-Maori infant deaths arising in the first week of life and one wonders whether this is related to the attendant care associated with the very high rates of hospitalisation of infants (especially Maori) in the first week of life.

For the years 1-24 years, in both Maori and non-Maori groups, motor vehicle accidents are the leading cause of death. Furthermore, the Maori and non-Maori rates are comparable and represent a substantial reduction in Maori deaths in the past decade. It is not clear why this should be, though it is worth noting there still remains a significant excess of hospital admissions for trauma from motor vehicle accidents in Maori people.

A striking observation at all age-groups, is the disproportionate number of deaths associated with respiratory disease. This appears to be more marked for Maori females and is associated in the earlier years with asthma, and in the later years with lung cancer and chronic obstructive respiratory disease. The relationship to smoking would seem particularly important as it is known that Maori females are heavy smokers (see Figure 40). Almost 1 in 3 Maori female smokers consume more than 20 cigarettes per day (13). Furthermore, other smoking related disorders such as lung cancer, coronary heart disease and hypertension, are all more common in Maori females. Whilst it is tempting to lay all the blame on cigarette smoking, it should be noted that the female susceptibility to respiratory disease is also present in children, where presumably only passive smoking is operative. There is a need to define whether the Maori respiratory tree, particularly that of females, is inherently more susceptible to environment pollutants such as cigarette smoke.

Asthma is a condition of particular concern in Maori people where there has been an increase in the number of deaths in the decade to 1980-84. This problem has been further highlighted in studies which noted most deaths occurred at weekends, at night and in the home (41, 53, 54). Indeed, the Auckland study showed that in only 40% of cases had the patient reached some form of medical care (54). Appreciation of the severity of an attack may well be an important factor as well as the obvious economic barrier in poorer Maori families associated with getting medical attention out of hours.

In these hard economic times, it might be expected that the number of deaths due to suicide would increase in the community and particularly in Maori people where excessive hardships and stress are felt. This has certainly been the case in the 15-24 year age-group where there has been an increase in both

the Maori and non-Maori rates. Suicide in Maori people has always been low, so there is some alarm at the 2. 5-fold increase in Maori male suicides that has taken place in the decade to 1980-84.

Coronary heart disease is the single most important cause of deaths in both the Maori and non-Maori community (55). However, of more concern is the excessive number of coronary deaths in Maori females, particularly in the younger group aged 25-44 years. Whilst one might expect that coronary heart disease would account for an excess of Maori female admissions to hospital, this has not been the case. Furthermore, coronary heart disease did not feature in the top five major causes of admissions for females in either the 25-44 year age-group or the 45-64 year group. This would suggest that Maori females are receiving different health care from their non-Maori counterparts. It would seem important to define what these differences are and why it should be that Maori women with coronary heart disease are not getting hospital treatment which one might expect from their disproportionate death rates. Sudden deaths due to coronary attacks need explanation also as they are almost three times higher in Maori people than non-Maori (55a).

Other forms of heart disease are also of major concern in Maori people because of their disproportionate mortality burden. These particularly relate to chronic rheumatic heart disease and hypertensive heart disease which cause 4–5 times as many deaths in Maori as non-Maori. These forms of heart disease are both preventable and eminently treatable and so it is disturbing to note these major discrepancies. Whilst it is tempting to suggest the reasons relate to inadequate access to health care, an inherent susceptibility to these conditions should be thoroughly researched.

Cancer is a leading cause of death and disability in Maori people, and in Maori females it was responsible for the largest percentage of potential years of working life lost. Whilst cancer of the lung and breast are numerically the most important cancers in Maori people, there is a striking excess seen for cancer of the stomach and cervix. Environmental factors such as cigarette smoking, obesity and sexually transmitted diseases are important but a genetic contribution should not be discounted, particularly with respect to cancer of the stomach. There are important examples of familial cancer of the stomach occurring in young Maori people which strongly suggests the possibility of a genetic determinant (56).

Overall, the Maori mortality statistics suggest lifestyle factors which undoubtedly have an important role in explaining many of the excess deaths.

Cigarette smoking is by far the most important environmental factor in a number of common conditions, which include lung cancer, chronic obstructive respiratory disease, asthma, coronary heart disease, and perhaps even cot death (57). Obesity too has been identified as an important general risk factor for many types of cancer and in particular breast cancer (58, 59). Motor vehicle accidents require continuing consideration as they remain the single biggest killer of young people in New Zealand today. Furthermore, there remains the important association of alcohol with motor vehicle accident deaths (60).

*Public and Private Hospital Discharges**

HIGHLIGHTS

- The average length of stay in public hospitals for Maori patients halved between 1970 and 1984 from 14. 3 to 7. 1 days.
- Maori infants continue to have a public hospital discharge rate 2 times higher than non-Maori infants.
- The Maori infant discharge rate for acute respiratory infections is nearly 4 times higher than non-Maori infants.
- Falls are the main cause of injuries leading to hospital admission in childhood, the Maori rate being 1. 6 times higher than the non-Maori rate.

NGĀ MĀUIUI O TE HUNGA KEI TE HŌHIPERA

- Ko ngā Tamariki
  - He rewhareha, he hēmanawa
  - He taringa pirau
  - He takataka
  - He whara i te motokā
- Ko ngā Wāhine (15-24 ngā tau)
  - He wāhine hapū, whakawhānau rānei
- Ko ngā Taitama Tāne (15-44 ngā tau)
  - He whara i ngā rori, i ngā waka
- Ko ngā Taipakeke
  - He hēmanawa, he huangō
  - He mate manawa
  - He kore e rere tika nō te toto

* Hospital admissions are analyzed by reference to data compiled at the time of discharge.

- The Maori pre-schooler (1-4 years) hospital discharge rate following motor vehicle accidents is 4 times higher than for non-Maoris. Fifty-four percent of the Maori pre-schooler discharges in 1984 were pedestrians hit by a motor vehicle and 43% passengers in a motor vehicle crash.
- Hospital admissions following motor vehicle accidents at ages 5-64 years are on average twice as high for Maori people and the leading cause of admission for males aged 15-44 years.
- At all ages Maori hospital discharge rates for respiratory diseases (including asthma, bronchitis and emphysema) are on average 3 times higher than non-Maori rates.
- At ages 15-24 years the rate for Maori women being discharged following admission for conditions of pregnancy, childbirth and the puerperium, is nearly 3 times higher than non-Maori women.
- At ages 45 years and over, Maori hospital discharge rates for hypertensive and other forms of heart disease (excluding coronary) are on average 3 times higher than the non-Maori rate.
- Special admissions without current complaint or reported

diagnosis and for elective procedures accounted for 9.2% of Maori and 7.1% of non-Maori public hospital discharges in 1984.

- Only 2.2% of discharges from private hospitals in 1984 were identified as being Maori people.
- Maori children have 3 times the hospital discharge rate of non-Maori for diseases of the ear and mastoid process but their myringotomy (ear drum) operation rate is 1.4 times lower.
- The Maori coronary bypass surgery rate is half that of non-Maori while deaths due to coronary heart disease are 19% higher for Maori men and 60% higher for Maori women.

PUBLIC HOSPITAL DISCHARGES:

The unit of analysis is the number of discharges(episodes of care), therefore each readmission of a patient for the same condition is counted as a separate episode of care and patients transferred to another public hospital are counted twice. Patients dying in hospital are also included in these figures.

In 1984, there were 429,745 discharges from public hospitals, 58,184 (13.5%) being from the Maori population. This compares to 252,787 discharges in 1970 when 27,456 (10.9%) were from the Maori population.

Over that same time period the average length of stay for Maori patients decreased from 14.3 to 7.1 days and for non-Maori patients from 16.1 to 11.2. The longer average stay for non-Maori patients is due to the older age structure of that population with longer hospital stays at ages 65 years and over.

The number of readmissions for the same condition have increased. In 1970, readmissions accounted for 13% of Maori cases and 17% of non-Maori cases. By 1984, they had risen to 20% and 21% respectively.

TABLE 32

PUBLIC HOSPITAL DISCHARGES, INFANTS AGED UNDER 1 YEAR, 1970-84

Age-specific rates per 10,000 population

Years	Maori	Non-Maori	Ratio Maori to Non-Maori
1970	3984	1721	2.3
1974	4557	2314	2.0
1980	6050	2751	2.2
1984	8153	3703	2.2
% Change 1970-84	+ 104.6	+ 115.2	

TABLE 33

PUBLIC HOSPITAL DISCHARGES, AGES 1-4 YEARS, 1970-84

Age-specific rates per 10,000 population

Years	Maori	Non-Maori	Ratio Maori to Non-Maori
1970	1244	757	1.6
1974	1179	818	1.4
1980	1631	864	1.9
1984	1892	993	1.9
% Change 1970-84	+ 52.1	+ 31.2	

Tables 32 to 38 show the % change in hospital discharge rates by age-group between the years 1970 and 1984. Hospitalisation has increased at all age-groups and for both races. Maori rates however continue to be from 1. 5 to more than 2 times higher than non-Maori rates.

Since 1970, discharge rates have increased by 104. 6% for Maori infants and by 115. 2% for non-Maori infants. Statistics from maternity hospitals have been included in the statistics since mid 1981 and this accounts for some of the increase in rates for perinatal conditions (61). Prior to 1981, statistics on sick infants were not received from maternity hospitals that were not part

TABLE 34

PUBLIC HOSPITAL DISCHARGES, AGES 5-14 YEARS, 1970-84
Age-specific rates per 10,000 population

Years	Maori	Non-Maori	Ratio Maori to Non-Maori
1970	710	517	1.4
1974	666	526	1.3
1980	767	547	1.4
1984	822	551	1.5
% Change 1970-84	+ 15.8	+ 6.6	

TABLE 35

PUBLIC HOSPITAL DISCHARGES, AGES 15-24 YEARS, 1970-84
Age-specific rates per 10,000 population

Years	Maori	Non-Maori	Ratio Maori to Non-Maori
1970	1192	809	1.5
1974	1079	822	1.3
1980	1275	829	1.5
1984	2526	1178	2.1
% Change 1970-84	+ 111.9	+ 45.6	

of a general hospital. Rates for all major reasons for admission for infants have increased, the highest being for perinatal conditions and special admissions without current diagnosis.

Included under special admissions are boarder babies (e. g. accompanying a sick mother), admissions for observation and health supervision (e. g. mother receiving mothercraft instruction). The 1984 Maori infant discharge rate for special admissions (1020. 4 per 10,000) was 6 times higher than in 1970 (166. 2). For non-Maori the 1970 rate (156. 6) was more than 3 times higher than the 1984 rate (512. 9).

TABLE 36

PUBLIC HOSPITAL DISCHARGES, AGES 25-44 YEARS, 1970-84
Age-specific rates per 10,000 population

Years	Maori	Non-Maori	Ratio Maori to Non-Maori
1970	1219	728	1.7
1974	1185	793	1.5
1980	1393	871	1.6
1984	2053	1226	1.7
% Change 1970-84	+ 68.4	+ 68.4	

TABLE 37

PUBLIC HOSPITAL DISCHARGES, AGES 45-64 YEARS, 1970-84
Age-specific rates per 10,000 population

Years	Maori	Non-Maori	Ratio Maori to Non-Maori
1970	1650	957	1.7
1974	1699	1045	1.6
1980	1865	1129	1.7
1984	1875	1101	1.7
% Change 1970-84	+ 13.6	+ 15.0	

In 1970, special admissions accounted for 4% of Maori and 5% of non-Maori infant discharges. In 1984, the proportion had risen to 12. 5% for Maori and 13. 9% for non-Maori infants.

The increase in rates at ages 15-44 years is mainly due to a doubling of the female discharge rate between 1970 and 1984. In 1970, females accounted for 58% of the discharges at ages 15-44 years and by 1984 they made up 74% of the discharges.

The main reason for this increase was the inclusion of normal delivery maternity cases in public hospital statistics from mid 1981 (61). There has

TABLE 38

PUBLIC HOSPITAL DISCHARGES, AGES 65 YEARS AND OVER, 1970-84
Age-specific rates per 10,000 population

Years	Maori	Non-Maori	Ratio Maori to Non-Maori
1970	3196	1848	1.7
1974	3097	2041	1.5
1980	3297	2406	1.4
1984	3828	2579	1.5
% Change 1970-84	+ 19.8	+ 39.6	

also been an increase in admissions for contraceptive management and boarder mothers accompanying sick children (both included in the category special admissions).

Table 39 shows age-standardised discharge rates for the Maori and non-Maori populations in 1970 and 1984 subdivided by the International Classification of Diseases chapter groupings. Maori age-standardised rates in 1970 and 1984 were higher than non-Maori rates for all groupings except mental disorders in 1970 and these were almost identical.

Comparing 1984 with 1970, Maori rates for infectious and parasitic diseases; endocrine, nutritional and metabolic diseases and immunity disorders; and diseases of the skin and subcutaneous tissue show small reductions. Rates for all other disease groupings have increased. Non-Maori rates have all increased with the exception of diseases of the skin and subcutaneous tissue.

In 1970, the Maori age-standardised discharge rate for mental disorders (23.1) was slightly lower than the non-Maori rate (23. 5). In 1984, the Maori rate (36. 7) was 1. 5 times higher than the non-Maori rate (25. 3), the major contributors being increases in Maori admissions for schizophrenia, affective psychoses and alcoholism.

The greatest difference in Maori and non-Maori rates in both 1970 and 1984 was in the category endocrine, nutritional and metabolic diseases and immunity disorders. The 1984 Maori rate (45. 7) was 3 times higher than the non-Maori (14. 9). The major diseases in this category for Maori cases were diabetes, gout and obesity.

TABLE 39

PUBLIC HOSPITAL DISCHARGES, 1970 AND 1984
Age-standardised rates per 10,000 population

ICD Chapter headings	Maori		Non-Maori	
	1970	1984	1970	1984
Infectious and parasitic diseases	64.9	56.8	22.2	28.2
Neoplasms	72.5	102.2	60.6	77.8
Endocrine, nutritional and metabolic diseases and immunity disorders	46.1	45.7	14.7	14.9
Diseases of blood and blood-forming organs	7.0	11.2	5.6	6.9
Mental disorders	23.1	36.7	23.5	25.3
Diseases of nervous system and sense organs	72.4	98.6	42.0	52.0
Diseases of circulatory system	167.8	172.5	93.3	101.6
Diseases of respiratory system	224.4	261.3	97.9	105.1
Diseases of digestive system	103.4	126.6	81.8	84.5
Diseases of genitourinary system	101.7	127.6	66.2	76.8
Pregnancy, childbirth and the puerperium*	134.0	712.8	77.6	375.0
Diseases of the skin and subcutaneous tissue	44.5	32.8	18.2	16.7
Diseases of the musculoskeletal system and connective tissue	40.8	54.4	38.8	49.6
Congenital anomalies	18.9	29.7	22.0	25.0
Certain conditions originating in the perinatal period	13.6	64.0	10.4	35.1
Symptoms, signs and ill-defined conditions	69.6	97.3	49.6	68.5
Injury and poisoning	249.0	268.0	152.3	158.4
Special admissions without current complaint or reported diagnosis and for elective procedures	20.5	179.2	13.0	85.5
Total, all causes	1406.9	2121.0	850.1	1197.6

* Female specific rate

The Maori respiratory disease rate (261. 3) in 1984 was 2. 5 times higher than the non-Maori rate (105. 1) and the Maori infectious and parasitic disesase rate (56. 8) was 2 times higher than the non-Maori rate (28. 2).

Tables 40 and 41 list the ten leading causes for admissions to public hospitals for the Maori and non-Maori populations in 1984. The three leading causes for both races were (1) pregnancy, childbirth and the puerperium, (2) injuries and poisonings, and (3) special admissions.

In 1970, the leading cause of Maori admissions were injuries and poisonings. Pneumonia was the second leading cause in 1970 accounting for 1,939

TABLE 40

PUBLIC HOSPITAL DISCHARGES, 1984
Leading Causes of Admission, Maori Population

Ranking number	ICD codes	Cause	Number of cases	Percentage of total
1	640-676	Pregnancy, childbirth and the puerperium	11538	19.8
2	800-994	Injuries and poisoning including late effects	7969	13.7
3	V01-V82	Special admissions without current complaint or reported diagnosis and for elective procedures	5349	9.2
4	490-496	Chronic obstructive pulmonary disease and allied conditions	3097	5.3
5	780-799	Symptoms, signs and ill-defined conditions	2516	4.3
6	614-629	Disorders of female genital tract	1911	3.3
7	760-779	Conditions originating in the perinatal period	1696	2.9
8	140-208 230-234	Malignant neoplasms and carcinoma-in-situ	1505	2.6
9	460-466 487	Acute respiratory infections and influenza	1458	2.5
10	001-009 020-139	Infectious and parasitic diseases (except tuberculosis)	1457	2.5

TABLE 41

PUBLIC HOSPITAL DISCHARGES, 1984
Leading Causes of Admission, Non-Maori Population

Ranking number	ICD codes	Cause	Number of cases	Percentage of total
1	640-676	Pregnancy, childbirth and the puerperium	52,240	14.1
2	800-994	Injuries and poisoning including late effects	44,380	11.9
3	V01-V82	Special admissions without current complaint or reported diagnosis and for elective procedures	26,297	7.1
4	140-208 230-234	Malignant neoplasms and carcinoma-in-situ	23,110	6.2
5	780-799	Symptoms, signs and ill-defined conditions	20,673	5.6
6	710-729	Arthropathies and related disorders, dorsopathies and rheumatism (except rheumatic fever)	14,097	3.8
7	614-629	Disorders of female genital tract	13,299	3.6
8	490-496	Chronic obstructive pulmonary disease and allied conditions (including asthma)	12,900	3.5
9	410-414	Ischaemic heart disease	12,817	3.4
10	401-405 415-429	Hypertensive disease and other forms of heart disease (except ischaemic)	8,495	2.3

TABLE 42

PUBLIC HOSPITAL DISCHARGES, 1984
Leading Causes of Bed Occupancy, Maori Population

Ranking number	ICD codes	Cause	Total stay in days	Percentage of total
1	640-676	Pregnancy, childbirth and the puerperium	65,990	16.1
2	800-994	Injuries and poisoning including late effects	60,172	14.7
3	V01-V82	Special admissions without current complaint or reported diagnosis and for elective procedures	26,275	6.4
4	140-208 230-234	Malignant neoplasms and carcinoma-in-situ	17,336	4.2
5	760-779	Conditions originating in the perinatal period	16,285	4.0
6	490-496	Chronic obstructive pulmonary disease and allied conditions (including asthma)	15,740	3.8
7	401-405 415-429	Hypertensive disease and other forms of heart disease (except ischaemic)	13,768	3.4
8	780-799	Symptoms, signs and ill-defined conditions	13,266	3.2
9	430-438	Cerebrovascular disease	12,018	2.9
10	710-729	Arthropathies and related disorders dorsopathies and rheumatism (except rheumatic fever)	10,716	2.6

TABLE 43

PUBLIC HOSPITAL DISCHARGES, 1984
Leading Causes of Bed Occupancy, Non-Maori Population

Ranking number	ICD codes	Cause	Total stay in days	Percentage of total
1	430-438	Cerebrovascular disease	473,024	11.4
2	800-994	Injuries and poisoning including late effects	459,580	11.1
3	640-676	Pregnancy, childbirth and the puerperium	336,459	8.1
4	140-208 230-234	Malignant neoplasms and carcinoma-in-situ	300,812	7.3
5	290-299	Psychoses	257,485	6.2
6	320-359	Diseases of nervous system	218,064	5.3
7	710-729	Arthropathies and related disorders, dorsopathies and rheumatism (except rheumatic fever)	200,090	4.8
8	780-799	Symptoms, signs and ill-defined conditions	173,930	4.2
9	V01-V82	Special admissions without current complaint or reported diagnosis and for elective procedures	163,764	4.0
10	410-414	Ischaemic heart disease	145,255	3.5

(7%) of all admissions. In 1984, pneumonia accounted for only 1,221 (2. 1%) of Maori admissions and did not rank in the top ten causes.

Tables 42 and 43 list the ten leading causes of bed occupancy in public hospitals for the Maori and non-Maori populations. Pregnancy, childbirth and the puerperium account for 16. 1% of the total stay for Maori patients compared to 8. 1% for non-Maori patients.

Figure 22 shows hospital discharges in 1984 by the percentage in each age-group. The greatest percentage of hospital discharges for the Maori population were in the 15-24 year age-group (30. 6%). For non-Maori the greatest percentage was in the 25-44 year age-group (28. 1%). The older age-structure of the non-Maori population is reflected in the 22. 4% of discharges at ages 65 years and over compared to 4. 9% of Maori discharges at those ages.

FIGURE 22

PERCENTAGE OF PUBLIC HOSPITAL DISCHARGES BY AGE & RACE, 1984

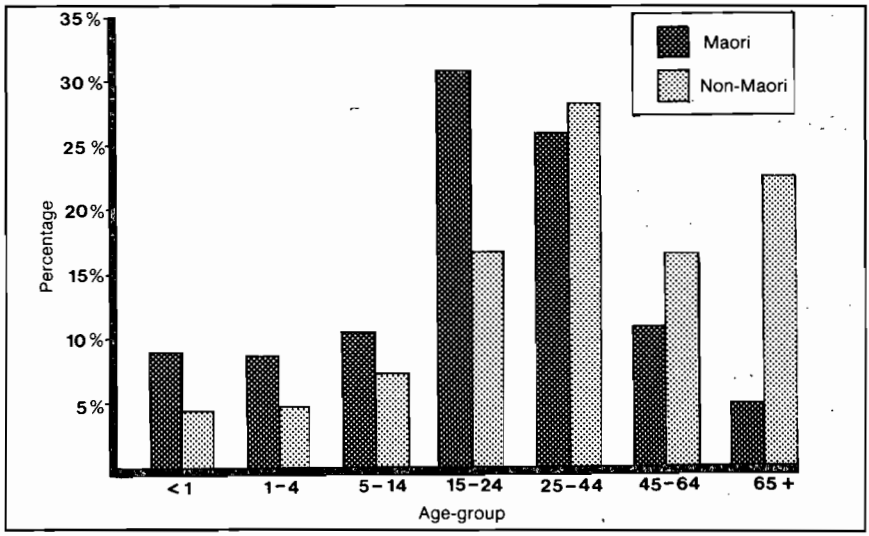
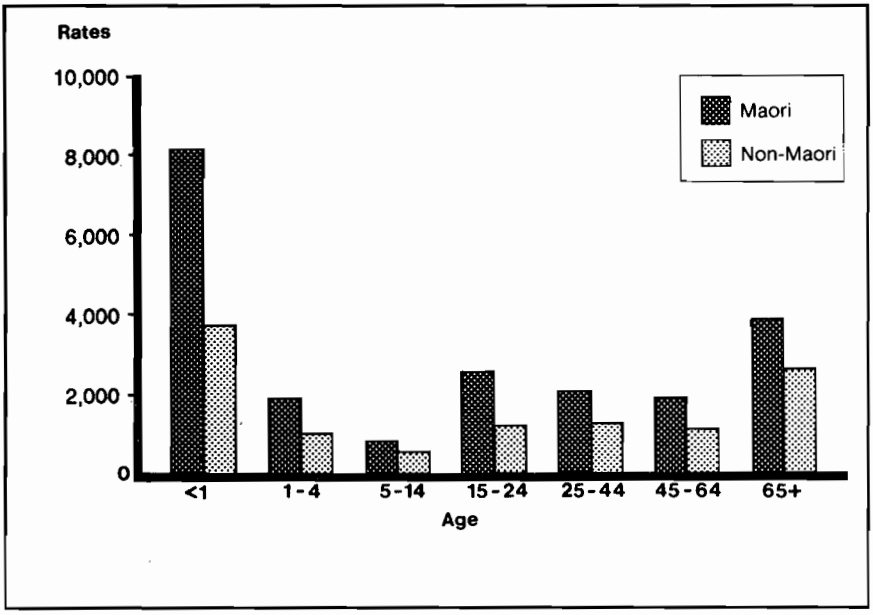


Figure 23 shows the 1984 hospital discharge rates for each age-group by race. Maori rates are from 1. 5 to 2 times higher than non-Maori rates. For both races rates are highest at ages under 1 year and lowest at ages 5-14 years.

FIGURE 23

PUBLIC HOSPITAL DISCHARGES BY AGE AND RACE, 1984
Age Specific Rates per 10,000 Population



MAJOR CAUSES OF ADMISSION BY AGE-GROUP, 1984

INFANTS UNDER 1 YEAR:

The Maori infant discharge rate (8153. 0 per 10,000) was more than twice as high as for non-Maori infants (3702. 7). The mean days stay for Maori infants was 6. 6 and for non-Maori 7. 1. Readmissions accounted for 11% of the Maori cases and 10% of the non-Maori cases.

Perinatal conditions were the leading cause for both races. Thirty-six percent of the the Maori cases were for low birthweight compared to 31% of non-Maori cases.

Acute respiratory infections were the second leading cause for Maori males and third for Maori female infants. Overall the Maori rate (1067. 6) was 3. 9 times higher than the non-Maori rate (273. 5).

Boarder babies made up 62% of the Maori and 58% of the non-Maori special admissions. A further 34% of Maori and 35% of non-Maori special admissions were for health supervision or observation.

The Maori rate for infectious and parasitic diseases (643. 1) was 2. 8 times higher than the non-Maori rate (233. 0). Seventy-three percent of the Maori

TABLE 44

PUBLIC HOSPITAL DISCHARGES: INFANTS AGED UNDER 1 YEAR, 1984

Numbers and age-specific rates per 10,000 population

Cause of admission	Maori				Non-Maori				Ratio M/ N-M
	Rank	No	Rate	Mean Days Stay	Rank	No	Rate	Mean Days Stay	
Total: All causes		5185	8153.0	6.6		16366	3702.7	7.1	2.2
Perinatal conditions	1	1693	2661.9	9.6	1	6425	1453.6	10.1	1.8
Low birthweight conditions		609	957.5	16.1		1985	449.0	17.5	2.1
Acute respiratory infections	2	679	1067.6	4.6	4	1209	273.5	3.6	3.9
Special admissions	3	649	1020.4	4.2	2	2267	512.9	5.0	2.0
Infectious and parasitic diseases (except TB)	4	409	643.1	4.5		1030	233.0	3.8	2.8
Diarrhoea and gastroenteritis		298	468.6	3.5		715	161.8	4.4	2.9
Congenital anomalies	5	288	452.8	7.4	3	1510	341.6	9.2	1.3
Signs and symptoms		253	397.8	5.3	5	1171	264.9	4.5	1.5
Males: All causes		3008	9033.0	6.8		9117	4035.9	6.9	2.2
Perinatal conditions	1	926	2780.8	10.2	1	3476	1538.7	9.9	1.8
Acute respiratory infections	2	420	1261.3	4.7	4	726	321.4	3.5	3.9
Special admissions	3	309	927.9	4.1	2	1157	512.2	5.0	1.8
Infectious and parasitic diseases	4	255	765.8	4.6		552	244.4	3.8	3.1
Hernia of abdominal cavity	5	184	552.6	4.3		376	166.4	2.9	3.3
Congenital anomalies		161	483.5	7.5	3	821	363.4	8.6	1.3
Signs and symptoms		140	420.4	4.4	5	648	286.9	4.8	1.5
Females: All causes		21777	184.8	6.5		7249	3354.5	7.3	2.1
Perinatal conditions	1	767	2531.4	8.9	1	2949	1364.6	10.0	1.9
Special admissions	2	340	1122.1	4.3	2	1110	513.7	5.0	2.2
Acute respiratory infections	3	259	854.8	4.4	5	483	223.5	3.7	3.8
Infectious and parasitic diseases	4	154	508.3	4.3		478	221.2	3.7	2.3
Congenital anomalies	5	127	419.1	7.2	3	689	318.8	9.7	1.3
Signs and symptoms		113	372.9	6.4	4	523	242.0	4.1	1.5

cases were due to diarrhoea and gastroenteritis as were 69% of the non-Maori cases.

With the exception of non-Maori special admissions, males experienced higher rates than females for all leading causes. Males accounted for 58% of Maori and 56% of non-Maori discharges.

AGES 1-4 YEARS:

The discharge rate was almost twice as high for Maori pre-schoolers (1892.4) than for non-Maori (992. 6). Asthma was the leading cause of admission for Maori males while for all other 1-4 year olds the leading cause was accidents with asthma ranking second.

The mean days stay for Maori children was longer than non-Maori for all leading causes. For infectious and parasitic diseases (mainly diarrhoea, gastroenteritis and viral illnesses) Maori children stayed on average almost twice as long in hospital as non-Maori children.

The major accidents leading to hospitalisation were falls (24% of Maori and 30% of non-Maori admissions) and poisoning (16% of Maori and 23% of non-Maori admissions). Motor vehicle accidents accounted for a further 15% of Maori and 7% of non-Maori admissions. Maori rates for accidents were twice as high as for non-Maori. The major types of injuries sustained were head injuries, fractures and lacerations.

Maori rates for pneumonia (130. 4) and asthma (315. 3) were 3. 5 and 2. 3 times higher respectively than non-Maori rates. Males accounted for 59% of the Maori and 60% of the non-Maori discharges. Male rates were higher than female rates for all leading causes.

AGES 5-14 YEARS:

Accidents were the leading cause of admission with falls being the major contributor (39% of Maori and 37% of non-Maori accidents). Motor vehicle accidents accounted for a further 13% of both Maori and non-Maori accidents at 5-14 years. Fractures, head injuries and lacerations were the major injuries sustained.

The second leading cause for Maori children was disease of the ear and mastoid process, the rate (93. 1) being more than 3 times higher than the non-Maori rate (30. 4).

Asthma ranked third for both races but the Maori rate (68. 1) was 1. 6 times higher than the non-Maori rate (41. 7). The Maori rate for chronic disease of

TABLE 45

PUBLIC HOSPITAL DISCHARGES, MAJOR CAUSES: AGES 1-4 YEARS, 1984

Numbers and age-specific rates per 10,000 population

Cause of admission	Maori				Non-Maori				Ratio M/ N-M
	Rank	No	Rate	Mean Days Stay	Rank	No	Rate	Mean Days Stay	
Total: All causes		5066	1892.4	4.8		17345	992.6	3.9	1.9
Accidents	1	911	340.3	5.3	1	3026	173.2	3.9	2.0
Falls		221	82.6	4.2		896	51.3	3.0	1.6
Poisoning		146	54.5	1.7		709	40.6	1.3	1.3
Motor vehicle accidents		136	50.8	7.3		215	12.3	7.5	4.1
Asthma	2	844	315.3	3.2	2	2440	139.6	2.6	2.3
Acute respiratory infections	3	527	196.9	3.3	3	1481	84.8	2.4	2.3
Infectious and parasitic diseases (except TB)	4	354	132.2	6.5	4	1407	80.5	3.3	1.6
Diarrhoea and gastroenteritis		228	85.2	3.5		983	56.3	4.4	1.5
Pneumonia	5	349	130.4	4.6		652	37.3	3.7	3.5
Signs and symptoms		250	93.4	3.8	5	1151	65.9	3.2	1.4
Males: All causes		2980	2161.0	4.7		10355	1152.7	3.9	1.9
Asthma	1	521	377.8	3.2	2	1590	177.0	2.6	2.1
Accidents	2	498	361.1	4.9	1	1770	197.0	4.3	1.8
Falls		115	83.4	4.1		521	58.0	3.7	1.4
Poisoning		86	62.4	1.7		410	45.6	1.3	1.4
Motor vehicle accidents		84	60.9	6.6		127	14.1	9.8	4.3
Acute respiratory infections	3	309	224.1	3.0	3	941	104.8	2.4	2.1
Pneumonia	4	203	147.2	4.6		367	40.9	3.5	3.6
Infectious and parasitic diseases	5	202	146.5	4.1	4	780	86.8	3.4	1.7
Signs and symptoms		137	99.3	4.1	5	627	69.8	3.2	1.4
Females: All causes		2086	1607.1	4.9		6990	823.2	3.8	2.0
Accidents	1	413	318.2	5.7	1	1256	147.9	3.4	2.2
Falls		106	81.7	4.3		375	44.2	2.1	1.8
Poisoning		60	46.2	1.6		299	35.2	1.2	1.3
Motor vehicle accidents		52	40.1	8.4		88	10.4	4.2	2.0
Asthma	2	323	248.8	2.9	2	850	100.1	2.6	2.5
Acute respiratory infections	3	218	168.0	3.8	4	540	63.6	2.3	2.6
Infectious and parasitic diseases	4	152	117.1	9.7	3	627	73.8	3.2	1.6
Pneumonia	5	146	112.5	4.6		285	33.6	3.9	3.3
Signs and symptoms		113	87.1	3.4	5	524	61.7	3.2	1.4

TABLE 46

PUBLIC HOSPITAL DISCHARGES, MAJOR CAUSES: AGES 5-14 YEARS, 1984

Numbers and age-specific rates per 10,000 population

Cause of admission	Maori				Non-Maori				Ratio M/ N-M
	Rank	No	Rate	Mean Days Stay	Rank	No	Rate	Mean Days Stay	
Total: All causes		6024	821.9	6.2		27141	550.6	4.8	1.5
Accidents	1	1584	216.1	5.2	1	6888	139.7	4.6	1.5
Falls		611	83.4	3.8		2543	51.6	3.1	1.6
Motor vehicle accidents		202	27.6	10.6		896	18.2	9.1	1.5
Diseases of ear and mastoid process	2	682	93.1	4.2		1498	30.4	2.5	3.1
Asthma	3	499	68.1	3.9	3	2056	41.7	3.1	1.6
Signs and symptoms	4	364	49.7	3.0	2	2117	42.9	3.2	1.2
Congenital anomalies	5	240	32.7	10.8	5	1679	34.1	8.5	1.0
Chronic disease of tonsils and adenoids		210	28.7	2.6	4	1931	39.2	2.5	0.7
Males: All causes		3367	905.4	6.7		15585	619.5	4.8	1.5
Accidents	1	991	266.5	5.7	1	4231	168.2	4.6	1.6
Falls		367	98.7	4.3		1549	61.6	3.2	1.6
Motor vehicle accidents		137	36.8	12.2		585	23.3	8.8	1.6
Diseases of ear and mastoid process	2	342	92.0	4.6		837	33.3	2.6	2.8
Asthma	3	265	71.3	4.0	2	1246	49.5	3.1	1.4
Congenital anomalies	4	182	48.9	8.3	3	1168	46.4	7.3	1.1
Signs and symptoms	5	167	44.9	2.9	4	1033	41.1	3.1	1.1
Chronic disease of tonsils and adenoids		88	23.7	2.3	5	888	35.3	2.5	0.7
Females: All causes		2657	736.0	5.6		11556	478.8	4.9	1.5
Accidents	1	593	154.3	4.3	1	2657	110.1	4.5	1.5
Falls		244	67.6	3.2		994	41.2	3.1	1.6
Motor vehicle accidents		65	18.0	7.2		311	12.9	9.5	1.4
Diseases of ear and mastoid process	2	340	94.2	4.0	5	661	27.4	2.4	3.4
Asthma	3	234	64.8	3.6	4	810	33.6	3.0	1.9
Signs and symptoms	4	197	54.6	3.1	2	1084	44.9	3.3	1.2
Chronic disease of tonsils and adenoids	5	122	33.8	2.7	3	1043	43.2	2.5	0.8

the tonsils and adenoids (28. 7) was 27% lower than the non-Maori rate (39.2).

The average length of stay in hospital was longer for Maori children for all leading causes except signs and symptoms. Males accounted for 56% of the Maori and 57% of the non-Maori discharges.

AGES 15-24 YEARS:

Females accounted for 78% of the Maori and 70% of the non-Maori discharges at ages 15-24 years. Pregnancy, childbirth and the puerperium was the leading cause for females (55% of Maori and 45% of non-Maori female discharges). The Maori rate (2181. 2) was nearly 3 times higher than the non-Maori rate (755. 1). In 1984, 64% of Maori births were to women aged under 25 years compared to 35% of non-Maori births.

The Maori female special admission rate (586. 6) was 3. 5 times higher than the non-Maori rate (169. 1). Boarder and mothercraft reasons accounted for 62% of the Maori and 52% of the non-Maori special admissions. A further 26% of Maori and 35% of non-Maori special admissions were for postpartum care.

The Maori female rate for accidents (150. 4) was 1. 5 times higher than the non-Maori rate (99. 8). Motor vehicle accidents were the major contributor (48% of Maori and 44% of non-Maori accidents).

For males, accidents were the leading cause, 44% of Maori and 46% of non-Maori admissions. The Maori accident rate (489. 4) was 1. 5 times higher than the non-Maori rate (320. 0). Motor vehicle accidents (40% of Maori and 43% of non-Maori cases) and falls (13% of Maori and non-Maori cases) were the major types of accidents.

Respiratory diseases ranked second for males of both races but the Maori rate (95. 6) was nearly twice as high as the non-Maori rate. In both races the female respiratory disease rate was higher than the male rate. Asthma accounted for 58% of the Maori female respiratory cases and 50% of the male. For non-Maori people asthma accounted for 45% of the female and 31% of the male respiratory cases.

AGES 25-44 YEARS:

Females accounted for 74% of the Maori discharges and 76% of the non-Maori discharges at ages 25-44 years. Pregnancy, childbirth and the puerperium was the leading cause accounting for 35% of Maori and 41% of non-Maori female discharges.

TABLE 47

PUBLIC HOSPITAL DISCHARGES, MAJOR CAUSES: AGES 15-24 YEARS, 1984

Numbers and age-specific rates per 10,000 population

Cause of admission	Maori				Non-Maori				Ratio M/ N-M
	Rank	No	Rate	Mean Days Stay	Rank	No	Rate	Mean Days Stay	
Total: All causes		17798	2526.3	5.5		62142	1178.5	5.9	2.1
Pregnancy, childbirth and the puerperium	1	7630	1083.0	5.6	1	19422	368.3	6.2	2.9
Accidents	2	2262	321.1	7.4	2	11210	212.6	7.9	1.5
Motor vehicle accidents		954	135.4	9.4		4837	91.7	10.3	1.5
Falls		301	42.7	4.2		1421	26.9	4.9	1.6
Special admissions	3	2122	301.2	4.5	3	4568	86.6	4.5	3.5
Respiratory diseases	4	754	107.0	4.0	5	3155	59.8	4.3	1.8
Asthma		408	57.9	3.4		1220	23.1	5.0	2.5
Pregnancy with abortive outcome	5	656	93.1	2.3		3068	58.2	1.9	1.6
Signs and symptoms		573	81.3	3.0	4	3174	60.2	3.0	1.4
Males: All causes		3905	1100.9	6.5		18906	700.0	6.9	1.6
Accidents	1	1736	489.4	7.6	1	8643	320.0	8.3	1.5
Motor vehicle accidents		701	197.6	9.7		3706	137.2	10.9	1.4
Falls		247	69.6	4.3		1139	42.2	5.2	1.6
Respiratory diseases	2	339	95.6	4.1	2	1345	49.8	5.2	1.9
Asthma		169	47.6	3.2		411	15.2	8.5	3.1
Signs and symptoms	3	179	50.5	3.0	3	959	35.5	3.0	1.4
Appendicitis	4	150	42.3	5.0	4	818	30.3	4.7	1.4
Diseases of musculo-skeletal system	5	136	38.3	8.3	5	666	24.7	8.3	1.6
Females: All causes		13893	3971.7	5.2		43236	1680.9	5.5	2.4
Pregnancy, childbirth and the puerperium	1	7630	2181.2	5.6	1	19422	755.1	6.2	2.9
Special admissions	2	2052	586.6	4.5	2	4349	169.1	4.5	3.5
Pregnancy with abortive outcome	3	656	187.5	2.3	3	3068	119.3	1.9	1.6
Accidents	4	526	150.4	6.7	4	2567	99.8	6.4	1.5
Motor vehicle accidents		253	72.3	8.5		1131	44.0	8.4	1.6
Falls		54	15.4	3.4		282	11.0	3.7	1.4
Respiratory diseases	5	415	118.6	3.8		1810	70.4	3.6	1.7
Asthma		239	68.3	3.5		809	31.5	4.0	2.2
Signs and symptoms		394	112.6	2.9	5	2215	86.1	3.0	1.3

TABLE 48

PUBLIC HOSPITAL DISCHARGES, MAJOR CAUSES: AGES 25-44 YEARS, 1984

Numbers and age-specific rates per 10,000 population

Cause of admission	Maori				Non-Maori				Ratio M/ N-M
	Rank	No	Rate	Mean Days Stay	Rank	No	Rate	Mean Days Stay	
Total: All causes		15029	2052.6	6.3		104502	1226.3	6.1	1.7
Pregnancy, childbirth and the puerperium	1	3870	528.5	5.9	1	32764	384.5	6.6	1.4
Special admissions	2	1993	272.2	4.3	2	13422	157.5	3.8	1.7
Accidents	3	1593	217.6	10.1	3	8202	96.2	7.3	2.3
Motor vehicle accidents		509	69.5	9.0		2088	24.5	9.8	2.8
Disorders of female genital tract	4	750	102.4	3.9	4	5708	67.0	4.4	1.5
Respiratory diseases	5	740	101.1	5.0		3365	39.5	4.6	2.6
Asthma		360	49.2	4.2		1258	14.8	4.4	3.3
Signs and symptoms		565	77.2	3.4	5	4248	49.8	3.3	1.6
Males: All causes		3898	1075.0	8.6		25108	589.7	6.9	1.8
Accidents	1	1145	315.8	11.2	1	6244	146.6	7.5	2.2
Motor vehicle accidents		363	100.1	9.0		1553	36.5	9.8	2.7
Respiratory diseases	2	307	84.7	5.2	4	1625	38.2	4.3	2.2
Asthma		122	33.6	4.4		430	10.1	4.5	3.3
Diseases of musculo-skeletal system	3	222	61.2	6.9	2	2052	48.2	7.2	1.3
Signs and symptoms	4	210	57.9	3.7	3	1746	41.0	3.1	1.4
Mental disorders	5	177	48.8	14.9	5	1175	27.6	15.8	1.8
Females: All causes		11131	3011.6	5.6		79394	1862.0	5.9	1.6
Pregnancy, childbirth and the puerperium	1	3870	1047.1	5.9	1	32764	768.4	6.6	1.4
Special admissions	2	1833	495.9	3.9	2	12409	291.0	3.8	1.7
Disorders of female genital tract	3	750	202.9	3.9	3	5708	133.9	4.4	1.5
Pregnancy with abortive outcome	4	492	133.1	2.3	4	4224	99.1	2.2	1.3
Accidents	5	448	121.2	7.2		1958	45.9	6.6	2.6
Motor vehicle accidents		146	39.5	8.9		535	12.5	9.8	3.2
Signs and symptoms		355	96.0	3.2	5	2502	58.7	3.4	1.6

Special admissions ranked second for both races. Boarder and mothercraft reasons accounted for 58% of the Maori and 51% of the non-Maori special admissions. Contraceptive management accounted for a further 26% of the Maori and 27% of non-Maori special admissions.

While respiratory disease did not rank in the 5 major causes for females, the Maori discharge rate of 117. 2 (433 discharges) was almost 3 times higher than the non-Maori rate of 40. 8 (1740 discharges). Asthma accounted for 55% (238) of the Maori and 48% of the non-Maori respiratory cases.

For males, accidents were the leading cause, with motor vehicle accidents being the leading contributor (32% of Maori and 25% of non-Maori cases). Respiratory disease ranked second for Maori males the rate (84. 7) being more than twice as high as the non-Maori rate (38. 2). Forty percent of the Maori male respiratory cases were due to asthma compared to 26% of non-Maori.

Diseases of the musculo-skeletal system ranked second for non-Maori and third for Maori males. Disorders of the back and intervertebral discs were the major contributor for both races.

AGES 45-64 YEARS:

Females accounted for 53% of the Maori discharges and 47% of the non-Maori discharges at ages 45-64 years.

The leading cause for Maori males and females was respiratory disease. The male rate (191. 0) was 2. 7 times higher than the non-Maori male rate (71. 4). The female rate (213. 9) was nearly 4 times higher than the non-Maori female rate (55. 4). Chronic obstructive respiratory disease including bronchitis and emphysema made up 59% of the Maori respiratory case with asthma contributing a further 31%.

For Maori males, accidents ranked second and the mean days stay of 21. 5 was more than twice that of non-Maori males. The major contributors were motor vehicles accidents (29%) and falls (20%).

Coronary heart disease was the leading cause for non-Maori males and the rate (161. 0) was 1. 6 times higher than the Maori rate (97. 6). In contrast, the Maori male rate for hypertensive and other forms of heart disease (179. 4) was 3. 4 times higher than the non-Maori rate (53. 0). The Maori female rate for hypertensive and other forms of heart disease (132. 5) was more than 4 times higher than the non-Maori rate (31. 0). Coronary heart disease did not feature in the 5 major causes for females. The Maori rate of 58. 8 (99

TABLE 49

PUBLIC HOSPITAL DISCHARGES, MAJOR CAUSES: AGES 45-64 YEARS, 1984

Numbers and age-specific rates per 10,000 population

Cause of admission	Maori				Non-Maori				Ratio M/ N-M
	Rank	No	Rate	Mean Days Stay	Rank	No	Rate	Mean Days Stay	
Total: All causes		6230	1875.4	11.1		60961	1100.7	10.4	1:7
Respiratory diseases	1	673	202.6	5.2		3611	63.4	9.0	3.2
Chronic obstructive respiratory disease		149	44.9	8.5		988	17.8	11.0	2.5
Asthma		209	62.9	8.6		987	17.8	8.9	3.5
Malignant neoplasms (cancer)	2	605	182.1	13.2	1	7822	141.2	11.8	1.3
Cancer of lung		193	58.1	12.8		1165	21.0	10.4	2.8
Hypertensive disease and other forms of heart disease (excluding coronary)	3	517	155.6	11.3		2330	42.1	10.0	3.7
Accidents	4	452	136.1	17.7	5	4161	75.1	12.4	1.8
Motor vehicle accidents		128	38.5	41.0		777	14.0	18.5	2.8
Falls		104	31.3	6.8		1457	26.3	11.9	1.2
Signs and symptoms	5	341	102.6	5.4	4	4191	75.7	5.2	1.4
Coronary heart disease		259	78.5	8.2	2	5840	105.4	8.3	0.7
Diseases of musculo-skeletal system		282	84.9	13.7	3	4513	81.5	11.4	1.0
Males: All causes		2949	1799.3	12.5		32243	1160.5	10.2	1.6
Respiratory diseases	1	313	191.0	9.0		1983	71.4	8.7	2.7
Chronic obstructive respiratory disease		69	42.1	8.9		604	21.7	10.6	1.9
Asthma		62	37.8	8.9		475	17.1	7.6	2.2
Accidents	2	308	187.9	21.5	2	2604	93.7	10.5	2.0
Motor vehicle accidents		88	53.7	53.1		470	16.9	11.5	3.2
Falls		63	38.4	7.3		754	27.1	9.9	1.4
Hypertensive disease and other forms of heart disease except coronary	3	294	179.4	11.6		1473	53.0	10.4	3.4
Malignant neoplasms (cancer)	4	282	172.1	14.5	2	3830	137.9	12.3	1.2
Cancer of lung		139	84.8	12.8		870	31.3	10.6	2.7
Diseases of musculo-skeletal system	5	166	101.3	13.3	5	2179	78.4	9.9	1.3
Coronary heart disease		160	97.6	8.3	1	4472	161.0	8.3	0.6
Signs and symptoms		162	98.8	5.2	4	2345	84.4	5.6	1.2

Table 49 continued

Females: All causes		3281	1949.5	9.8		28718	1040.5	10.7	1.9
Respiratory diseases	1	360	213.9	8.1		1528	55.4	10.7	3.9
Chronic obstructive respiratory disease		80	47.5	8.2		384	13.9	11.6	3.4
Asthma		147	87.3	8.5		512	18.6	10.2	4.7
Malignant neoplasms (cancer)	2	323	191.9	12.0	1	3992	144.6	11.4	1.3
Cancer of lung		54	32.1	12.7		295	10.7	9.8	3.0
Cancer of breast		52	30.9	10.2		591	21.4	12.0	1.4
Cancer of cervix		40	23.8	8.6		278	10.1	10.4	2.4
Disorders of female genital tract	3	303	180.0	4.3	2	3083	111.7	4.6	1.6
Hypertensive disease and other forms of heart disease	4	223	132.5	10.9		857	31.0	9.3	4.3
Signs and symptoms	5	179	106.4	5.6	4	1846	66.9	4.6	1.6
Diseases of musculo-skeletal system		116	68.9	14.3	3	2334	84.6	12.7	0.8
Accidents		144	85.6	9.6	5	1557	56.4	15.6	1.5
Motor vehicle accidents		40	23.8	14.3		307	11.1	29.3	2.1
Falls		41	24.4	6.0		703	25.5	14.0	1.0

discharges) was 1. 2 times higher than the non-Maori rate of 49. 6 (1368 discharges).

Cancer ranked first for non-Maori and second for Maori females. The leading sites for Maori women were lung (32. 1 per 10,000), breast (30. 9) and cervix (23. 8). For non-Maori women, the leading sites were breast (21. 4), lung (10. 7) and cervix (10. 1). The Maori rates were substantially higher than those for non-Maori for the leading sites.

AGES 65 YEARS AND OVER:

Females accounted for 48% of the Maori and 51% of non-Maori discharges. Cancer was the leading cause for males of both races and non-Maori females. The leading sites for Maori males were the lung (160. 5 per 10,000), and stomach (43. 0). These rates were significantly higher than the non-Maori male rates for lung (92. 0) and stomach (13. 7).

Cancer ranked third for Maori females, the leading sites being lung (40. 4 per 10,000), breast (30. 3) and cervix (27. 8). These rates were higher than the non-Maori female rates for lung (19. 8), breast (28. 7) and cervix (6. 9).

For Maori females, respiratory diseases were the leading cause of admission, the rate (510. 1) being more than 4 times higher than the non-Maori rate (119. 2). Respiratory diseases ranked second for males of both races, the Maori rate (518. 6) being 1. 9 times higher than the non-Maori rate (271. 7).

The average days stay of 13 for Maori respiratory cases was half the non-Maori stay of 25. 7 days. Thirty-seven percent of the Maori respiratory cases were due to chronic obstructive respiratory disease including bronchitis and emphysema and a further 31% due to pneumonia.

The Maori male coronary heart disease rate (232. 1) was 7% lower than the non-Maori rate (250. 8). For Maori females, however, the coronary heart disease rate (209. 6) was 39% higher than the non-Maori rate (150. 4).

TABLE 50

PUBLIC HOSPITAL DISCHARGES, MAJOR CAUSES: AGES 65 YEARS AND OVER, 1984

Numbers and age-specific rates per 10,000 population

Cause of admission	Maori				Non-Maori				Ratio M/ N-M
	Rank	No	Rate	Mean Days Stay	Rank	No	Rate	Mean Days Stay	
Total: All causes		2852	3828.2	18.3		83104	2578.5	26.2	1.5
Respiratory diseases	1	383	514.1	13.0	4	5896	182.9	25.7	2.8
Chronic obstructive respiratory disease		140	187.9	14.3		2751	85.4	21.0	2.2
Pneumonia		119	159.7	14.0		1415	43.9	51.9	3.6
Hypertensive disease and other forms of heart disease	2	345	463.1	15.3	5	5299	164.4	20.0	2.8
Malignant neoplasms (cancer)	3	304	408.1	13.6	1	11278	349.9	15.5	1.2
Cancer of lung		72	96.6	11.8		1612	50.0	12.5	1.9
Signs and symptoms	4	170	228.2	25.9		4621	143.4	24.5	1.6
Coronary heart disease	5	164	220.1	14.1	3	6199	192.3	14.7	1.1
Accidents		127	170.5	22.0	2	6832	212.0	35.0	0.8
Falls		71	95.3	24.7		5037	156.3	40.9	0.6
Males: All causes		1479	4237.8	16.4		40397	2998.1	20.7	1.4
Malignant neoplasms (cancer)	1	183	524.4	12.7	1	6499	482.3	14.3	1.1
Cancer of lung		56	160.5	10.2		1240	92.0	12.6	1.7
Respiratory diseases	2	181	518.6	10.3	2	3661	271.7	21.9	1.9
Chronic obstructive respiratory disease		66	189.1	10.5		1942	144.1	20.6	1.3
Pneumonia		68	194.8	11.1		799	59.3	35.0	3.3
Hypertensive disease and other forms of heart disease	3	170	487.1	13.2	4	2484	184.4	17.1	2.6
Signs and symptoms	4	83	237.8	42.1		2231	165.6	17.4	1.4
Coronary heart disease	5	81	232.1	10.5	3	3379	250.8	12.6	0.9
Cerebrovascular disease (stroke)		57	163.3	26.5	5	2343	173.9	63.5	0.9

Table 50 continued

Females: All causes		1373	3467.2	20.4		42707	2277.1	31.7	1.5
Respiratory diseases	1	202	510.1	15.5		2235	119.2	32.1	4.3
Chronic obstructive respiratory disease		74	186.9	17.6		809	43.1	21.9	4.3
Pneumonia		51	128.8	17.8		616	32.8	73.9	3.9
Hypertensive disease and other forms of heart disease	2	175	441.9	17.4	4	2815	150.1	22.5	2.9
Malignant neoplasms (cancer)	3	121	305.6	15.0	1	4779	254.8	17.1	1.2
Cancer of lung		16	40.4	17.6		372	19.8	12.1	2.0
Cancer of breast		12	30.3	12.8		539	28.7	17.7	1.1
Cancer of cervix		11	27.8	18.2		129	6.9	15.2	4.0
Signs and symptoms	4	87	219.7	10.4		2390	127.4	31.1	1.7
Coronary heart disease	5	83	209.6	17.6	3	2820	150.4	17.3	1.4
Diseases of musculo-skeletal system		50	126.3	24.8	2	3255	173.6	29.1	0.7
Cerebrovascular disease (stroke)		61	154.0	102.7	5	2753	146.8	95.7	1.0

The greatest difference in rates between races was for hypertensive and other forms of heart disease. The Maori male rate (487. 1) was 2. 6 times higher than the non-Maori rate (184. 4). The Maori female rate (441. 9) was 2. 9 times higher than the non-Maori rate (150. 1).

TABLE 51

PRIVATE HOSPITAL DISCHARGES, ALL AGES, 1984

Numbers and age-standardised rates per 10,000 population

Cause of admission	Maori				Non-Maori				Ratio M/ N-M
	Rank	No	Rate	Mean Days Stay	Rank	No	Rate	Mean Days Stay	
Total, all causes		1709	62.5	5.0		75974	241.6	20.3	0.3
Diseases of musculo-skeletal system	1	371	13.2	3.4	1	10454	32.5	14.9	0.4
Injuries	2	217	7.2	3.9		3182	10.2	19.8	0.7
Special admissions	3	170	6.1	2.6	2	9696	29.5	11.2	0.2
Pregnancy with abortive outcome	4	134	3.8	1.0		1267	4.0	1.1	1.0
Diseases of the ear and mastoid process	5	117	3.6	1.2	4	4216	17.5	1.4	0.2
Disorders of female genital tract		54	2.3	4.0	3	6170	19.3	4.7	0.5
Hernia of abdominal cavity		90	3.4	3.5	5	3900	12.4	4.2	0.3

PRIVATE HOSPITAL DISCHARGES:

The Maori population does not feature prominently in private hospital statistics. In 1978, the earliest year that data are available by race, only 369 (0. 5%) of discharges were from the Maori population. In 1984, the number had risen to 1709 (2. 2%). This number may however be understated, as 13,075 (16. 8%) of the private hospital discharges in 1984 had no ethnic details recorded. The average length of stay for Maori patients in 1984 was 5. 0 days compared with 20. 3 days for non-Maori.

Figure 24 shows the age-specific discharge rates from private hospitals by race for 1984. Maori rates were significantly lower than non-Maori rates for all age-groups.

FIGURE 24

PRIVATE HOSPITAL DISCHARGES BY AGE AND RACE, 1984

Age-specific rates per 10,000 population

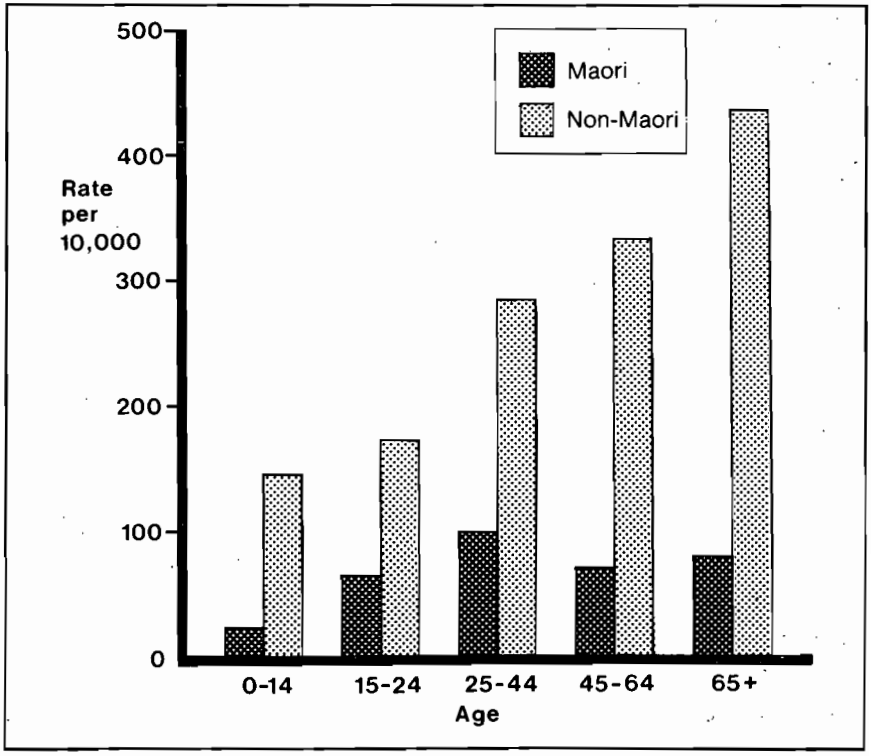


Table 51 shows the 5 leading reasons for admission to private hospital by race in 1984. The leading cause accounting for 21.7% of the Maori discharges was disease of the musculo-skeletal system, the greatest proportion being joint disorders, predominantly of the knee.

SURGICAL PROCEDURES – PUBLIC AND PRIVATE HOSPITALS:

Table 52 shows age-standardised rates for selected operations carried out in public and private hospitals in 1984. Rates for operations performed in private hospitals were significantly lower for the Maori population.

Overall the Maori population had higher rates than the non-Maori population for cataracts, heart valve surgery, varicose veins, appendicectomies, kidney transplants and tubal ligations.

TABLE 52

SELECTED OPERATIONS IN PUBLIC AND PRIVATE HOSPITALS BY RACE, 1984

Age-standardised rates per 10,000 population

Operation	Maori			Non-Maori		
	Public	Private	Total	Public	Private	Total
Cataracts	156.9	22.8	179.7	51.9	41.0	92.9
Myringotomy	154.0	30.8	184.8	95.3	172.2	267.5
Tonsillectomy and adenoidectomy	132.2	15.9	148.1	170.3	134.2	304.5
Heart valve surgery	45.2	–	45.2	12.2	0.6	12.8
Removal coronary artery obstruction	4.2	–	4.2	10.4	0.9	11.3
Bypass for heart revascularization	6.8	–	6.8	13.6	0.2	13.8
Varicose veins	146.8	24.9	171.7	71.7	66.9	138.6
Appendicectomy	173.0	0.3	173.3	134.7	11.6	146.3
Haemorroidectomy	41.9	8.5	50.4	28.3	27.5	55.8
Cholecystectomy	75.6	3.3	78.9	69.4	25.9	95.3
Repair inguinal/femoral hernia	181.5	32.5	214.0	110.1	114.0	224.1
Kidney transplant	4.6	–	4.6	2.3	0.1	2.4
Menisectomy	23.1	45.4	68.5	18.9	67.8	86.7
Total hip replacement	46.7	13.5	60.2	44.2	23.2	67.4
Transurethral prostatectomy*	60.6	3.2	63.8	104.0	57.0	161.0
Vasectomy*	26.5	9.4	35.9	25.1	69.4	94.5
Destruction/occlusion fallopian tubes†	507.2	5.5	512.7	252.9	59.6	312.5
Conization cervix†	36.1	–	36.1	29.3	10.6	39.9
Other excision/destruction lesion cervix†	77.5	2.6	80.1	78.8	24.6	103.4
Hysterectomy (vaginal and abdominal)†	241.9	25.1	267.0	218.8	174.6	393.4

* Male-specific rates † Female-specific rates

The Maori operation rate for myringotomy (ear drum procedure) (184. 8 per 10,000) was 31% lower than the non-Maori rate (267. 5). For tonsillectomy and adenoidectomy, the Maori rate (148. 1) was 51% lower than the non-Maori rate (304. 5).

The non-Maori operation rate for coronary bypass (13. 8) was more than twice the Maori rate (6. 8). As mentioned earlier, the Maori age-standardised death rates for coronary heart disease in 1984 were however 19% higher than non-Maori males and 60% higher than non-Maori females. This would lead one to assume that, for whatever reasons, Maori patients are under-represented in the coronary bypass figures.

DISCUSSION

Hospital discharge rates add a further dimension to the health status of Maori people today. In the 15 years from 1970-84, hospitalisation has increased at all age-groups for both Maori and non-Maori. Maori rates, however, continue to be from 1. 5 to more than 2 times higher than non-Maori rates indicating an excessive burden of ill-health experienced by Maori people, especially at younger ages.

The Maori infant discharge rate of over 8,000 per 10,000 is staggeringly high and over twice as high as the non-Maori infant rate. This would indicate that many Maori infants experience one or more hospital admissions in their first year of life. The major reason for hospitalisation was for perinatal conditions such as low birthweight, which has been documented to be higher in Maori than non-Maori. It is to be noted once again that both Maori and non-Maori infant deaths due to perinatal causes have more than halved over the past 15 years and part of this reason could well be related to the closer supervision of these infants associated with hospitalisation. Finally, acute respiratory infections and infectious diseases, such as diarrhoea and gastroenteritis are important other causes of admission in Maori infants.

Accidents are an important cause of hospitalisation at all ages in Maori people. For ages 1-14 years, falls were the leading cause of injury, whilst beyond the age of 15 years, motor vehicle accidents were the major contributor. In spite of the improvement in death rates due to motor vehicle accidents, there has nevertheless been an increase in hospitalisation in the decade to 1984, associated with serious trauma relating to these accidents on the road. There is a need to define those factors which contribute to the excess burden of motor vehicle accidents in Maori people.

Respiratory disease at all ages was a very important cause of hospitalisation in Maori people. This is particularly so for asthma in the younger age-groups, and chronic respiratory disease, including bronchitis and emphysema, in the older age-groups. As was noted in the mortality figures for respiratory disease, Maori females suffer disproportionately high rates of hospitalisation.

It was noted earlier that there was excessive mortality from coronary heart disease in Maori females, yet coronary heart disease did not feature in the five major causes for hospitalisation for Maori females. Coronary artery disease surgery is an established form of treatment for this condition and may well prolong life. However, the number of Maori people, particularly females, receiving this treatment were few. A similar picture exists with respect to ear diseases for which Maori children have appreciable higher rates of hospitalisation than non-Maori children. Operations such as myringotomy (ear drum procedure), tonsillectomy and adenoidectomy are all substantially less in Maori than non-Maori, yet one might expect the oppposite to happen given the excess rates of diseases of the ear, nose and throat in Maori children.

These are just two examples of discrepancies which suggest that Maori people are apparently missing out on treatments which in the case of coronary artery surgery is potentially life-saving. There are important and sensitive issues here which require answers.

As might be expected, few Maori receive treatment in private hospitals. The most common reason for a Maori person to receive treatment in a private hospital is for orthopaedic surgery. It is highly likely that these operations relate to injuries covered by the Accident Compensation Corporation.

Overall, the most substantial increases in hospitalisation of Maori people in the past 15 years have occurred for metabolic diseases (diabetes, gout and obesity), mental disorders (alcoholism, schizophrenia, and affective psychoses) and respiratory disease.

Lifestyle factors are again likely to be important particularly with respect to smoking, alcohol, stress and excess body weight. The excess number of cases of diabetes in Maori is of particular concern as the rate of diabetes will inevitably increase as the age structure of the Maori population changes and the number of older Maori people increases. The prevalence and incidence of diabetes in the Maori community is 4-5 times greater than in non-Maori but what is more worrying is that Maori diabetics present with serious complications 10 years earlier than non-Maori (42). The reasons for the more

aggressive nature of diabetes in Maori people is not clear and further research is warranted here.

Finally, the very high hospitalisation rates in Maori people, particularly infants and children, may reflect serious problems in the delivery of health care and there is an urgent need to define more clearly what these problems are and their causes. Certainly Maori people will be among the least able within the community to afford adequate medical care, and therefore it should come as no surprise that many Maori patients present later and with more advanced disease than non-Maori.

Psychiatric Hospital Admissions

HIGHLIGHTS

- First admission rates to psychiatric hospitals have fallen by up to 41% since 1970 except for Maori males where the admission rate has increased by 19%.
- Almost half of the Maori first admissions to psychiatric hospitals in 1984 were in the 15-24 year age-group.
- Since 1970 there has been a more than four-fold increase in the rate of first admission of Maori males to psychiatric hospitals for treatment of alcoholism.
- Forty-four percent of Maori male first admissions in 1984 were for alcohol dependence or abuse compared to 32% of non-Maori male admissions.

TE HUNGA WAIRANGI

- He taitama tāne, 15-24 ngā tau, te nuinga e heria ana ki ēnei hōhipera. He maha rātou kua kitea nā te pukukai waipiro i wairangi ai.
- Ko ētahi anō, nā te whakahaehae.

- Maori rates of admission for schizophrenic psychoses are twice the non-Maori rate for males and 2.8 times higher for females.

There were 4,265 first admissions to psychiatric hospitals in 1984, 579 (13.6%) being from the Maori population. This compares with 4,996 first admissions in 1970 when 395 (7.9%) were from the Maori population.

Males accounted for 60% of the Maori and 52% of the non-Maori admissions in 1984. Almost half (47%) of the Maori admissions were in the age-group 15-24 years while for non-Maori the greatest proportion (36%) were aged 25-44 years.

Table 53 shows age-specific admission rates by race and sex for the years 1970 and 1984.

Maori male rates at ages 15-44 years have increased substantially (47-64%) while rates for all other groups have decreased. The overall downward trend reflects the provision of alternative forms of psychiatric care over recent years.

The increase in Maori male admissions at ages 15-44 years is attributable to a more than four-fold increase in admission rates for alcoholism. In 1970, there were 20 admissions (4.4 per 10,000) compared to 132 (18.4) in 1984.

TABLE 53

FIRST ADMISSIONS TO PSYCHIATRIC HOSPITALS, 1970 AND 1984

Age-specific rates per 10,000 population

	Age in Years											
	<15		15–24		25–44		45–64		65+		Total*	
1970	M	F	M	F	M	F	M	F	M	F	M	F
Maori	7.3	6.0	32.3	43.5	23.0	29.2	17.0	13.6	24.2	14.5	18.6	20.3
Non-Maori	4.4	3.5	24.2	28.6	23.3	25.9	19.7	20.4	24.8	25.6	17.0	18.3
1984	M	F	M	F	M	F	M	F	M	F	M	F
Maori	2.8	2.1	47.4	30.0	37.8	26.5	14.0	8.9	11.5	7.6	22.2	14.9
Non-Maori	3.5	2.2	19.5	17.1	16.6	14.9	11.7	12.0	17.7	15.0	12.2	10.8

* Age-standardised rate

Table 54 shows the leading causes for admission in 1984 by race and sex. Alcohol dependence or abuse was by far the leading cause for males accounting for 44% of the Maori and 32% of the non-Maori admissions. The Maori rate (10.5) was 2.8 times higher than the non-Maori rate (3.8). Schizophrenic psychoses ranked second for Maori males, the rate (1.8) being twice the non-Maori (0.9).

The leading cause for females was neurotic depression and other depressive disorders accounting for 18% of the Maori and 26% of the non-Maori admissions. Alcohol dependence or abuse ranked second for Maori females, the rate (2.1) being nearly twice the non-Maori (1.1). The Maori female rate for schizophrenic psychoses (1.7) was 2.8 times higher than the non-Maori (0.6).

TABLE 54

FIRST ADMISSION TO PSYCHIATRIC HOSPITALS, ALL AGES, 1984
Numbers and age-standardised rates per 10,000 population

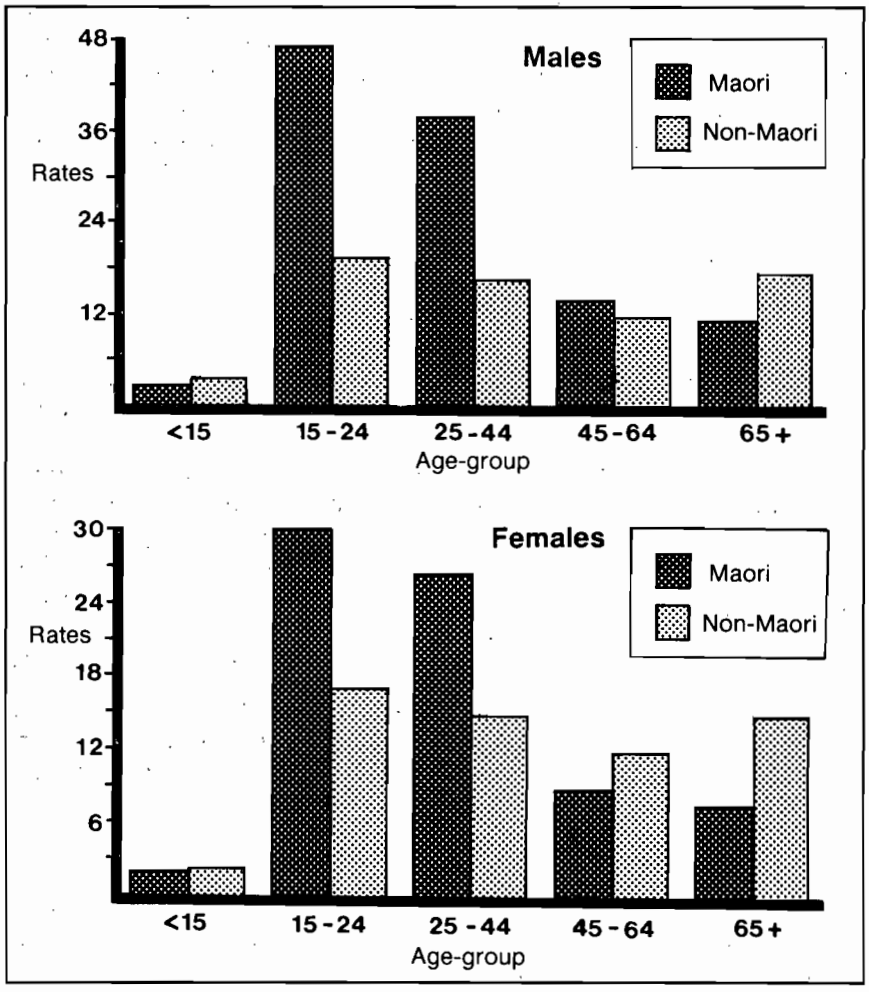
Cause of admission	Maori			Non-Maori			Ratio M/ N-M
	Rank	No	Rate	Rank	No	Rate	
Males: All causes		347	22.2		1924	12.2	1.8
Alcohol dependence or abuse	1	151	10.5	1	609	3.8	2.8
Schizophrenic psychoses	2	33	1.8	5	136	0.9	2.0
Neurotic depression and other depressive disorders	3	18	1.3	2	260	1.6	0.8
Stress and adjustment reactions	4 =	20	1.2		113	0.7	2.0
Affective psychoses	4 =	16	1.2	4	159	1.0	1.2
Other personality disorders		20	1.1	3	165	1.2	0.9
Females: All causes		232	14.9		1762	10.8	1.4
Neurotic depression and other depressive disorders	1	42	2.7	1	455	2.8	1.0
Alcohol dependence or abuse	2	32	2.1	4	171	1.1	1.9
Stress and adjustment reactions	3	29	1.8	3	202	1.3	1.4
Schizophrenic psychoses	4	27	1.7		93	0.6	2.8
Affective psychoses	5	24	1.6	2	246	1.4	1.4
Other personality disorders		22	1.4	5	157	1.1	1.3

Figure 25 shows age-specific first admission rates in 1984 by race. Non-Maori rates were higher than Maori rates at ages under 15 years and 65 years and over for both sexes. Maori male rates at ages 15-44 years were more than twice the non-Maori rates and for Maori females 1.8 times higher.

FIGURE 25

FIRST ADMISSIONS TO PSYCHIATRIC HOSPITALS BY RACE, 1984

Age-specific rates per 10,000 population



There were 10,116 readmissions (including replacements from leave of formal patients) in 1984, of which 1,367 (13.5%) were from the Maori population. The major reasons for readmission of Maori patients were schizophrenic psychoses (34%), affective psychoses (18%) and alcohol dependence or abuse (11%).

DISCUSSION

The extent of mental illness within the community is only partially revealed by studying psychiatric hospital admissions. This may well give a picture of the more severe mental illnesses but there are many other patients with mental illness who will be cared for in psychiatric units of general hospitals or by voluntary bodies with specialist treatment facilities, e.g. Salvation Army, or within families, i.e. outpatients. It is also likely that a significant number of Maori patients would seek the help of a family elder or a Tohunga, (traditional Maori healer), especially if the mental affliction had a cultural basis or more specifically a "Mate Maori" (Maori sickness). Indeed, up to 20% of Maori women have indicated they would seek the services of a tohunga if a "Mate Maori" was the problem (13).

A decade ago, the most common cause of first admissions for mental disorders in Maori people was for schizophrenic psychoses, which in the 25-44 year age-group had the highest rate for any disorder in any age-group, Maori or non-Maori. In 1984, we had a different picture and though psychiatric admissions overall have been tending to fall, particularly in non-Maori people, Maori admission rates still occurred at a greater rate. This is particularly so for Maori males in the 15-44 year age-group and the problem here relates to alcohol dependence or abuse, which is disproportionately high in Maori males. Maori females on the other hand are most troubled by neurotic depression and other depressive disorders, followed by alcohol dependence or abuse, and stress and adjustment reactions. However, it is the alcohol-related problems which have increased staggeringly since 1970.

The reasons for this are likely to be complex and include the distressing social and economic disadvantage and progressive acculturation experienced by Maori people. The loss of self-esteem and mana from unemployment, racial discrimination and cultural denegration are likely to be important and familiar backgound reasons.

It should be noted that Maori people are more likely to be admitted to psychiatric hospitals following referral from non-medical agencies such as those to do with law enforcement. Indeed, Maori people are twice as likely to be referred from law enforcement agencies as non-Maori people (43). Hence, it is possible that a high rate of apprehension for criminal offending amongst Maori people, especially if alcohol is a factor, could partly explain the over-representation of Maori people in psychiatric institutions, especially younger males with alcohol dependence or abuse. However, few Maori people are actually committed to a psychiatric hospital for alcohol

dependence, though overall, Maori people are twice as likely as non-Maori to be committed (62). The most common reason for committal is schizophrenia or other affective disorders.

Depression and other stress-related reactions are the most important causes of mental illness in females ahead of alcohol dependence or abuse. These disorders hardly featured in 1970 and it may not surprise that these have emerged, given the increasing social and economic disadvantage of Maori people in the past decade. Depression and stress-related disorders were highlighted in the Maori Women's Welfare League report as being amongst the most common illnesses suffered by younger Maori women (13).

Whilst the effects of increasing social and economic disadvantage are severe, more specific cultural reasons are likely to have an important place. Land has been highlighted as a foundation for mental health along with maintenance of family integrity and the Maori language (63). Pollution of land, lakes, waterways and the sea from a Maori point of view, represent as much an assault on the mind as on the environment and may well be a deterrent to good mental health or even a cause. Conversely, Maori efforts to reclaim some of their lost land and to re-establish tribal management programmes may be seen as positive mental health measures. The traditional Maori extended family has been severely disrupted by not only the separation of Maori people from their ancestral land but also from the all-pervading threat of the western emphasis on individualism and a nuclear family structure. This has been a costly Maori experience and the Matua Whangai Scheme has been introduced to restore extended family support to some of the casualties.

The stress of acculturation and its resultant instability and stress has not only accelerated in recent decades but has been associated with migration from rural to urban areas such that Maori people have assumed a migrant status (64). There is expansive literature on the relationship between migration and mental illness showing that migrants are more prone to the development of mental illness (65, 66). Maori people face not only the stresses ordinarily associated with movement and resettlement in new geographical areas but also the migration maximises acculturative pressures. The resultant disability and disorganisation within the family structure may be serious (18).

During times of stress and social disorganisation, it is generally observed that there are increases in non-psychotic disorders as opposed to psychoses. The current Maori mental health statistics would tend to support this view

since disorders relating to alcohol and depression are the most common in Maori males and females respectively.

On the positive side there has been the development in some mental institutions of culturally sensitive programmes for Maori people. These are exemplified by the Whai ora Programme at Tokanui (67). Whai ora is a Maori cultural unit with its own systems approach, its unique environment, atmosphere, socialisation, equality, community awareness, respect for others and individual integrity. It is an attempt to redress the spiritual and psychological balance lost as a result of assimilation of Maori culture into the predominantly European New Zealand society.

Cancer Incidence

HIGHLIGHTS

- Cancer is the second leading cause of death in Maori and non-Maori people.
- Maori incidence rates for cancer of the stomach, lung and cervix are more than 2.5 times higher than non-Maori rates.
- Cancer of the large intestine and breast are relatively more common in Maori people than they were in 1974-76.
- The Maori rate for liver cancer has increased by 80% since the period 1974-76. The Maori rate is more than 4 times higher than the non-Maori rate.
- Incidence of cervical cancer in Maori women has increased by 14% since 1974-76 while the non-Maori rate has remained unchanged.

HE MATE PUKUPUKU

Te mate weriweri nei – me kī koia nei te mate whakaheke o tēnei rautau – whakaheke i te katoa o te tangata o tēnei motu. Noho ai tēnei mate i ngā wāhanga katoa o te tinana

- i te puku
- i ngā whēkau
- i ngā pūkahukahu
- i te ate
- i ngā ū o ngā wāhine
- i te tomokanga ki te whare tangata

- The lung cancer incidence rate for Maori women is 4.5 times higher than that of non-Maori women.

Cancer is the second leading cause of death in New Zealand for both races with 1 death in 4 in 1984 being attributed to it. Table 55 shows cancer incidence age-standardised rates by race for the years 1974-76 and 1981-83. Three year periods have been combined to smooth out random fluctuations which are caused by the small number of Maori cases. The cancer sites were selected on the basis of at least 10 Maori cases being reported in the years 1974-76.

The Maori age-standardised rate for all sites has increased by 3% from 30.4 per 10,000 in 1974-76 to 31.3 to 1981-83. Over the same period the non-Maori rate increased by 5% from 23.7 to 24.9.

In 1981-83, Maori incidence rates for cancer of the stomach, lung and cervix were more than 2.5 times higher than non-Maori rates and cancer of the liver was 4.5 times higher. In contrast, the non-Maori rate for the large intestine was more than twice the Maori rate and for malignant melanoma 6.7 times higher.

The Maori rate for liver cancer has increased by 80% from 0.5 in 1974-76 to 0.9 in 1981-83. Thirty-one (72%) of the 43 Maori liver cancer cases registered in 1981-83 were males.

The non-Maori rate for cancer of the cervix was the same in 1981-83 as in 1974-76. The Maori rate however, increased by 14% from 2.8 in 1974-76 to 3.2 in 1981-83. Rates for cancer of the breast were the same in 1974-76 and 1981-83 for Maori women (6.1) but have decreased for non-Maori women from 6.4 to 5.9.

The Maori rate for stomach cancer has decreased by 23% from 3.1 to 2.4 but remained higher than the non-Maori rate of 0.9. Maori cancer of the prostate fell to a level below the non-Maori rate in 1978 and 1979 but increased again to exceed the non-Maori rate.

The non-Maori rate for cancer of the lung remained fairly constant over the period reviewed. In contrast, the Maori rate increased by 17% from 7.2 in 1974-76 to 8.4 in 1981-83. Females accounted for 114 (36%) of the Maori lung cancer cases in 1981-83 and 880 (24%) of the non-Maori cases. Maori females have one of the highest lung cancer incidence rates in the world (17). The age-standardised rate for Maori women in 1981-83 (5.9) was 4.5 times higher than the non-Maori female rate (1.3).

TABLE 55

CANCER INCIDENCE, 1974-76 AND 1981-83
Age-standardised rates per 10,000 population

Selected sites	Total numbers 1974-76		Standardised rates per 10,000 population		Total numbers 1981-83		Standardised rates per 10,000 population	
	Maori	Non-Maori	Maori	Non-Maori	Maori	Non-Maori	Maori	Non-Maori
Oesophagus	15	378	0.5	0.4	16	451	0.5	0.4
Stomach	93	1156	3.1	1.1	98	1168	2.4	0.9
Large intestine	31	2697	1.0	2.7	58	3372	1.3	2.8
Rectum& rectosigmoid junction	25	1326	0.8	1.3	38	1725	0.9	1.5
Liver	22	140	0.5	0.1	43	184	0.9	0.2
Pancreas	32	717	1.1	0.7	34	700	0.8	0.6
Lung	224	3168	7.2	3.1	315	3689	8.4	3.1
Connective and other soft tissue	16	166	0.2	0.2	14	196	0.2	0.2
Melanoma of skin	11	1440	0.3	1.6	15	2046	0.3	2.0
Breast*	126	3149	6.1	6.4	147	3206	6.1	5.9
Cervix uteri*	71	498	2.8	1.1	88	559	3.2	1.1
Other uterus*	32	598	1.7	1.2	44	557	1.8	1.0
Ovary, fallopian tube and broad ligament*	18	545	0.9	1.1	34	564	1.2	1.0
Prostate*	45	1443	4.1	3.1	55	1919	4.1	3.4
Testis*	11	179	0.3	0.4	32	245	0.8	0.5
Bladder	14	841	0.5	0.8	18	990	0.4	0.8
Kidney and ureter	26	436	0.7	0.5	21	628	0.5	0.6
Brain	36	410	0.5	0.5	25	544	0.4	0.6
Thyroid	21	206	0.4	0.2	18	212	0.4	0.2
Lymphosarcoma and reticulum cell sarcoma	14	279	0.3	0.3	13	389	0.3	0.3
Multiple myeloma	13	267	0.5	0.3	13	351	0.3	0.3
Lymphatic leukaemia	11	270	0.2	0.3	20	353	0.3	0.4
Myleloid leukaemia	30	346	0.7	0.4	31	337	0.6	0.3
All Sites	1070	23477	30.4	23.7	1406	28800	31.3	24.9

* Sex specific

CANCER INCIDENCE 1974-83

Source: Cancer Data: New Registrations and Deaths 1983, National Health Statistics Centre.

FIGURE 26

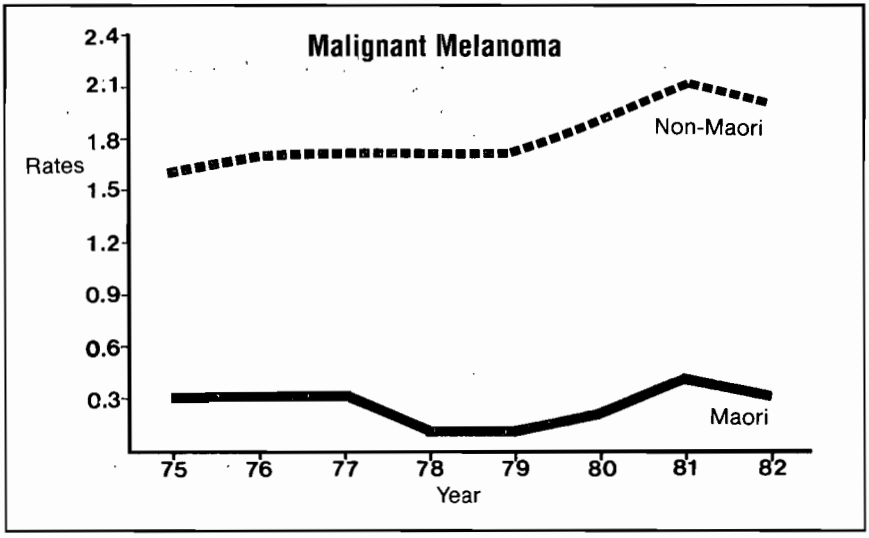
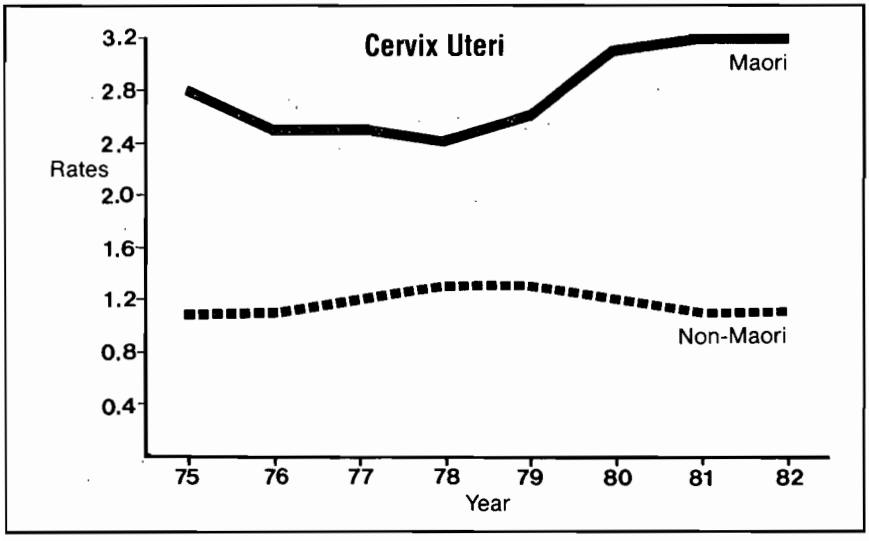


FIGURE 27



These figures show 3 year moving average age-standardised rates per 10,000 population for selected sites.

FIGURE 28

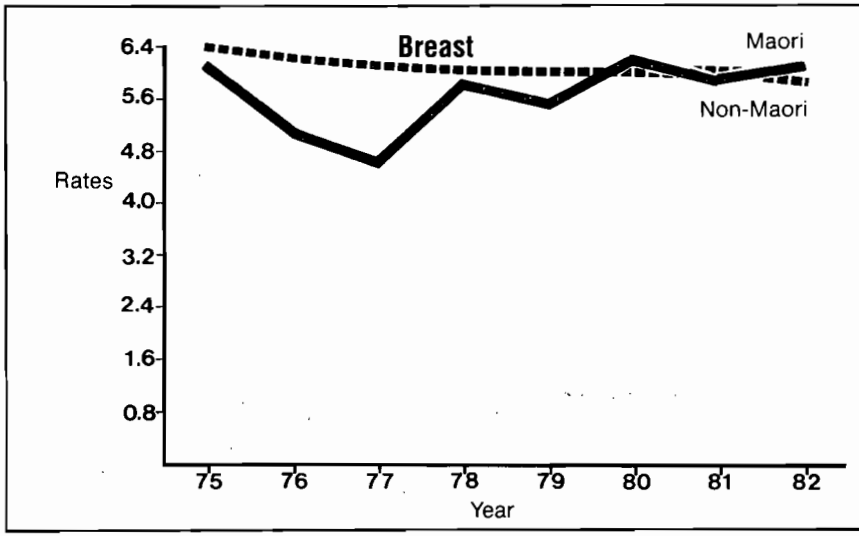


FIGURE 29

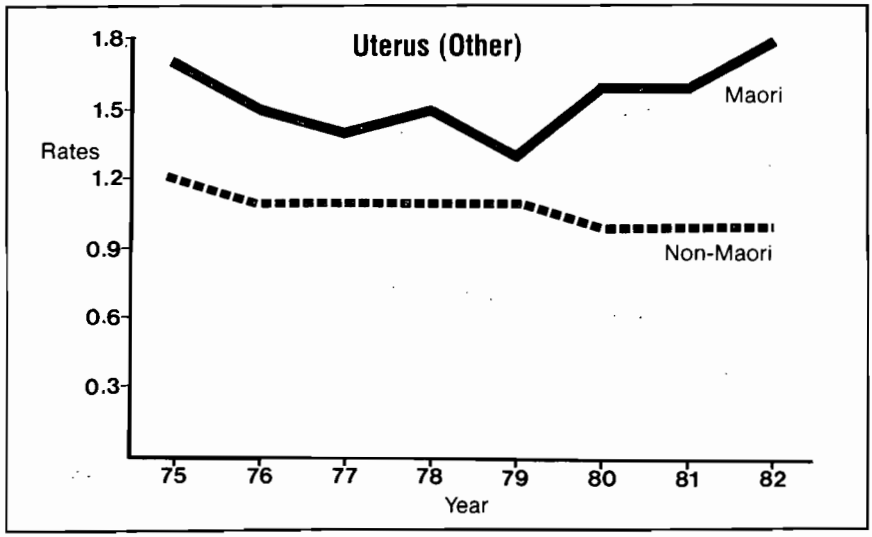


FIGURE 30

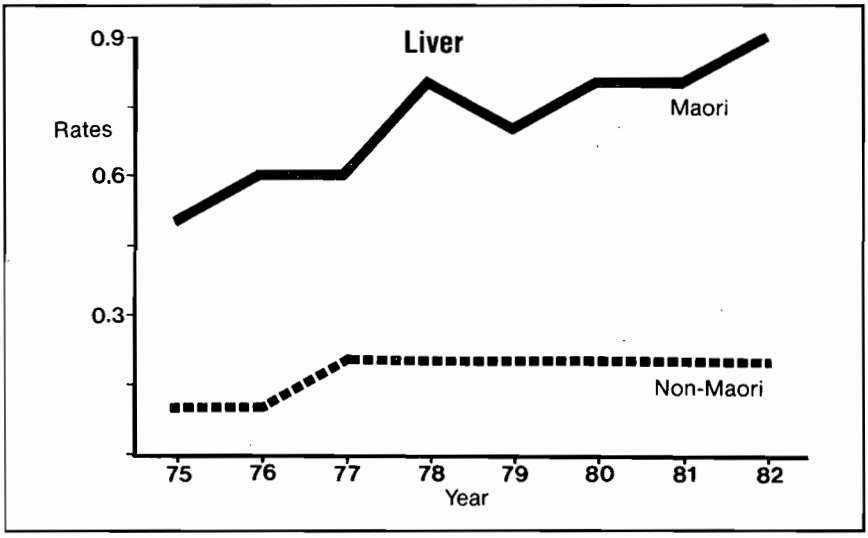
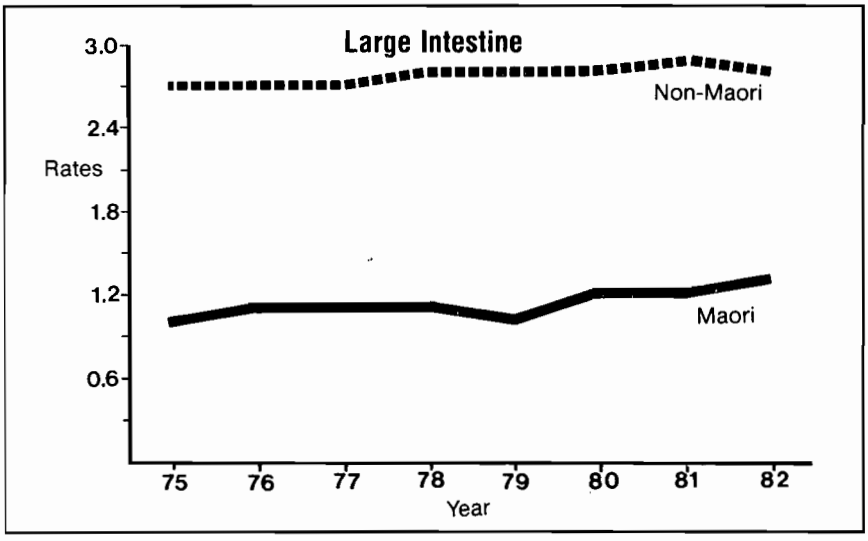


FIGURE 31



These figures show 3 year moving average age-standardised rates per 10,000 population for selected sites.

FIGURE 32

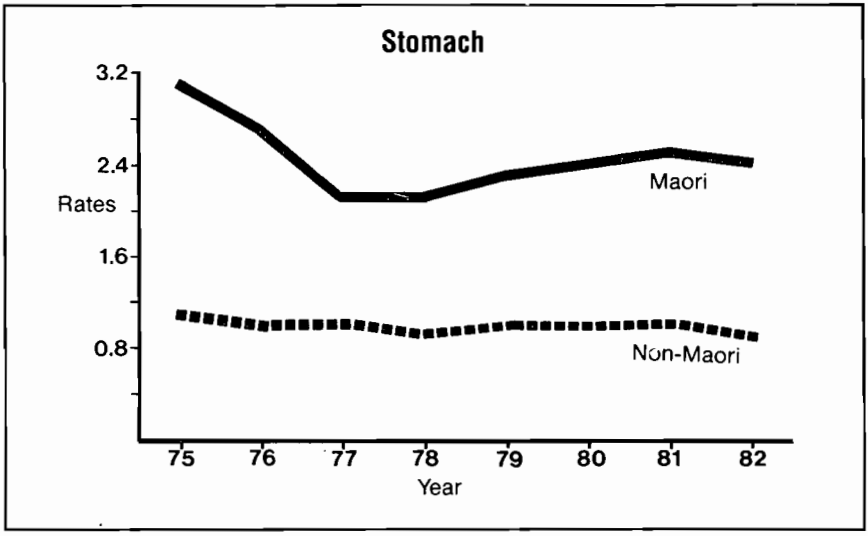


FIGURE 33

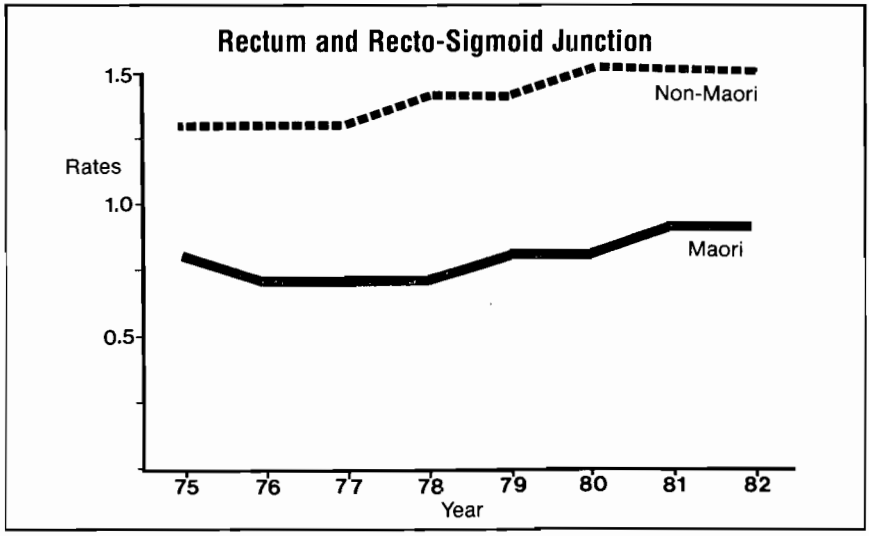


FIGURE 34

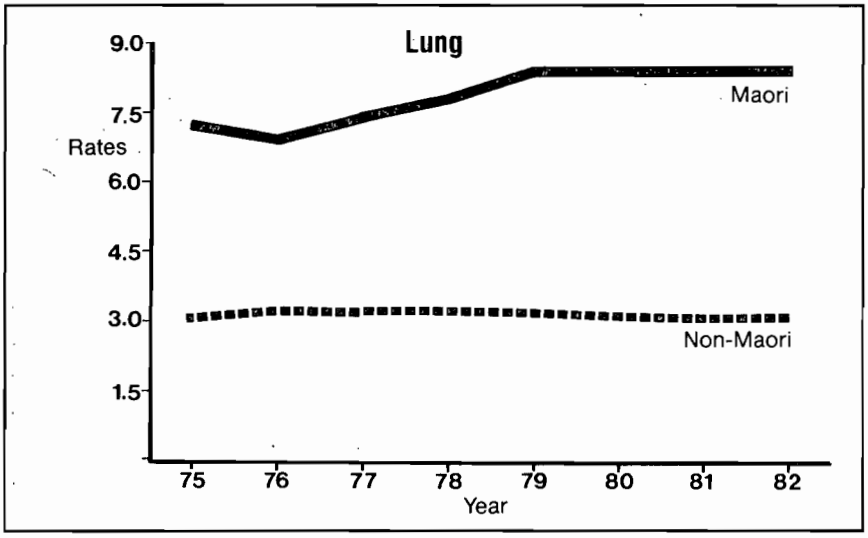
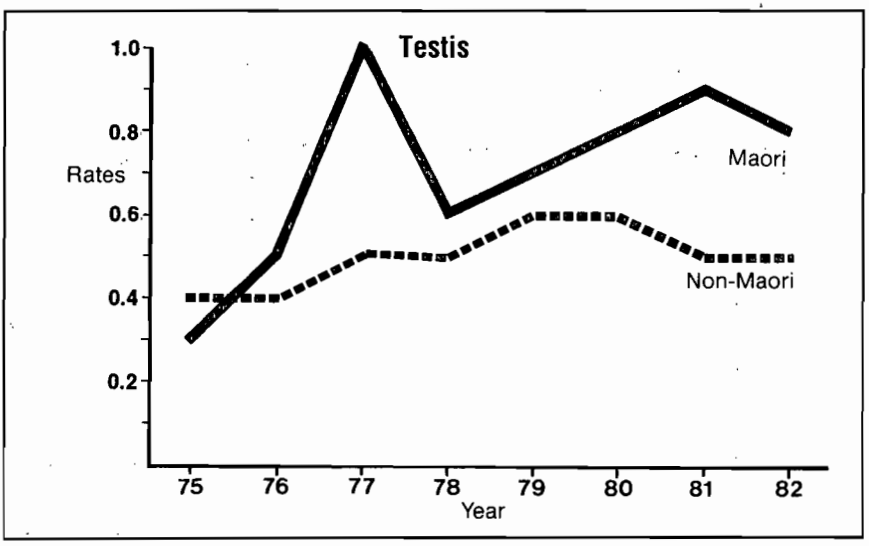


FIGURE 35



These figures show 3 year moving average age-standardised rates per 10,000 population for selected sites.

FIGURE 36

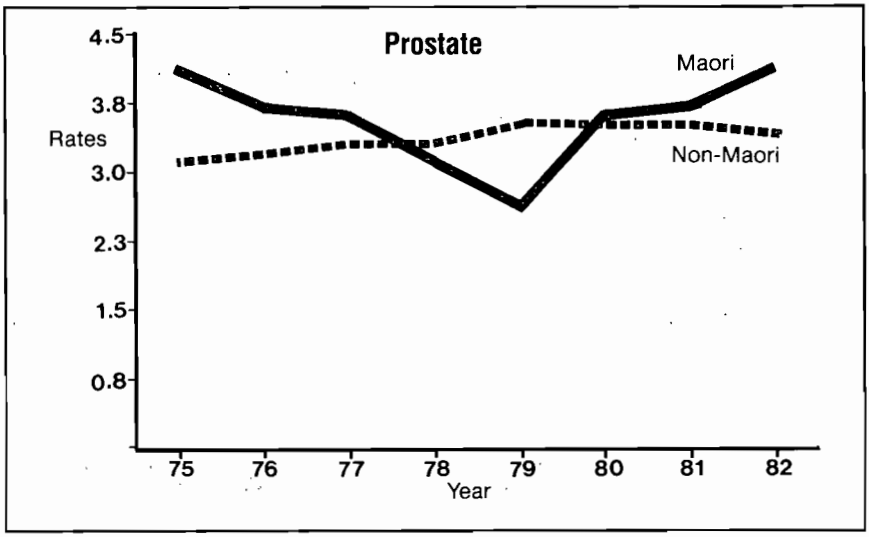
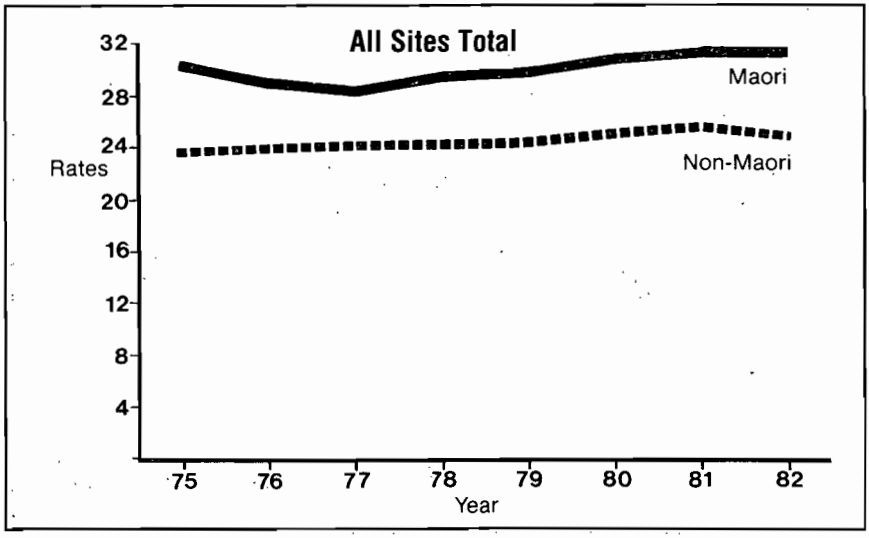


FIGURE 37



Tables 56 and 57 show the ten leading sites of cancer registered in 1981-83 by race and sex.

Lung was the leading site of cancer for males, 29% of Maori and 20% of non-Maori cases. Prostate ranked second, 8% of Maori and 13% of non-Maori cancer cases.

For females, breast was the top ranking cancer site with 21% of Maori and 22% of non-Maori cases. Lung ranked second for Maori females with 16% and large intestine for non-Maori with 13% of cases. Cervix ranked third for Maori women accounting for 12% of cancer cases whereas for non-Maori women cervix ranked eighth with 4% of cases.

TABLE 56

LEADING SITES OF CANCER, MAORI POPULATION, 1981-83

Males	Number	Percentage
Lung	201	28.8
Prostate	55	7.9
Stomach	53	7.6
Leukaemia	35	5.0
Liver	31	4.4
Colon	27	3.9
Rectum	25	3.6
Pancreas	22	3.2
Kidney	14	2.0
Brain	14	2.0
Females	**Number**	**Percentage**
Breast	147	20.7
Lung	114	16.1
Cervix	88	12.4
Uterus	45	6.3
Stomach	45	6.3
Ovary	34	4.8
Colon	31	4.4
Pancreas	18	2.5
Rectum	13	1.8
Liver	12	1.7

DISCUSSION

The impact of cancer on the Maori community is severe with disturbing trends in the most common sites. Lung cancer incidence has increased in Maori people whilst remaining static in non-Maori. Lung cancer is more common in Maori people than it was a decade ago and is currently twice as common as any other cancer. Furthermore, the excess of deaths in Maori people, particularly Maori females, is almost 4 times as great. There would seem little doubt that the excessive prevalence of smoking in Maori people, particularly Maori females,is now having a disastrous effect which will increase in the next one to two decades. If for no other reason, there is an urgent need for a more effective anti-smoking programme in Maori people.

The second most common cancer in Maori people is cancer of the breast. A decade ago this was noted to be more common in non-Maori but this

TABLE 57

LEADING SITES OF CANCER, NON-MAORI POPULATION, 1981-83

Males	Number	Percentage
Lung	2809	19.5
Prostate	1919	13.3
Colon	1486	10.3
Rectum	984	6.8
Malignant melanoma	849	5.9
Bladder	748	5.2
Stomach	705	4.9
Leukaemia	444	3.1
Kidney	413	2.9
Pancreas	394	2.7
Females	**Number**	**Percentage**
Breast	3206	23.0
Colon	1886	13.5
Malignant melanoma	1196	8.6
Lung	880	6.3
Rectum	741	5.3
Uterus	568	4.1
Ovary	565	4.1
Cervix	559	4.0
Stomach	463	3.3
Pancreas	306	2.2

situation has now reversed. Obesity has been singled out as an important risk factor in breast cancer (59) and as there is a high prevalence of obesity in Maori women, an increasing number of cases of this cancer might be expected.

For Maori women the most common site of cancer, after the breast and lung, is the cervix and the incidence has increased significantly in the past decade whilst remaining static in non-Maori females. Furthermore, cervical cancer is nearly 3 times as common in Maori women as non-Maori women. Recent research suggests an important relationship between cervical cancer and the human papilloma virus (68). Indeed many would regard cervical cancer as a sexually transmitted disease and efforts to reduce its incidence have stressed "safe sex" (use of protective sheaths and fewer sexual partners) and regular cervical smears. Another important factor in Maori women relates to smoking which seems to be a risk factor operating independently to sexual factors (69).

In New Zealand there have been no co-ordinated campaigns to reduce the incidence of cervical cancer though there have been calls for their implementation (70). In Maori women relatively fewer undergo cervical smearing even though as a group they have a high risk status (71). However, culturally sensitive approaches to cervical smearing have been adopted at the Tukaki Marae medical practice in the Eastern Bay of Plenty where the Maori nurse, who is trained to take cervical smears, achieves a high smear rate in Maori women in that region. It is pleasing to note that the Department of Health is providing funding over the next 3 years to support pilot programmes to find ways in which cervical screening can be accessible and culturally appropriate for both Maori and non-Maori women.

Large bowel cancer is often quoted along with malignant melanoma as a cancer which is much more common in non-Maori people. However, it should be noted there has been a 30% increase in the last decade in large bowel cancer in Maori people and overall this cancer has become the fourth most common cancer in Maori people. Dietary factors seem to be important in large bowel cancer and perhaps the most important of these relate to excessive energy intakes and the associated obesity, excessive fat intake itself associated with obesity, and reduced complex carbohydrate intake (fruit, vegetables and cereals) (72). Available dietary data though scanty (see Tables 61-64), would suggest that all these factors could be significant with respect to a changing pattern of large bowel cancer in Maori people. In a small study in 1941, Maori families were noted to consume about 50%

more energy from meat (the most important source of dietary fat) than non-Maori, and 70% less fruit and vegetables (73, 74).

There are a number of cancers where incidence in Maori people is disproportionately high and these include cancers of the stomach, liver, uterus and testes. The causative factors in cancer of the stomach are not well known but this cancer has an excessively high death rate which is up to 9 times that in non-Maoris in the 25-44 year age-group. The causative factors in stomach cancer are not clear but include smoking, a diet with fewer fruits and vegetables, the consumption of smoked and other cured foods and in the ingestion of water with high nitrate levels from contamination with nitrogenous fertilisers (72). Better preservation of foods by refrigeration has been cited as a protective factor. Finally, there is a suggestion from Maori family case studies that genetic factors may be important (56). Follow-up surveillance in high-risk families might therefore be desirable.

Cancer of the liver needs special mention as there is an excessively high rate in Maori people and a very substantial increase in the number of cases in the past decade (75, 76). The high rate of hepatitis B carriage in Maori people would seem important here (77) but it should not be forgotten that cirrhosis of the liver, which might also be caused by alcohol is an additional important risk factor to consider (78). Indeed, the high rates of alcohol-related disorders in Maori people would tend to support the idea that alcohol is an important causative factor too. The campaign to immunise infants and children against hepatitis B, particularly in high risk areas where the Maori population is high, is to be welcomed as this will no doubt have a significant effect in reducing the incidence of hepatitis and its chronic complications such as liver cancer, cirrhosis, chronic hepatitis and the carrier state, in the decades to come.

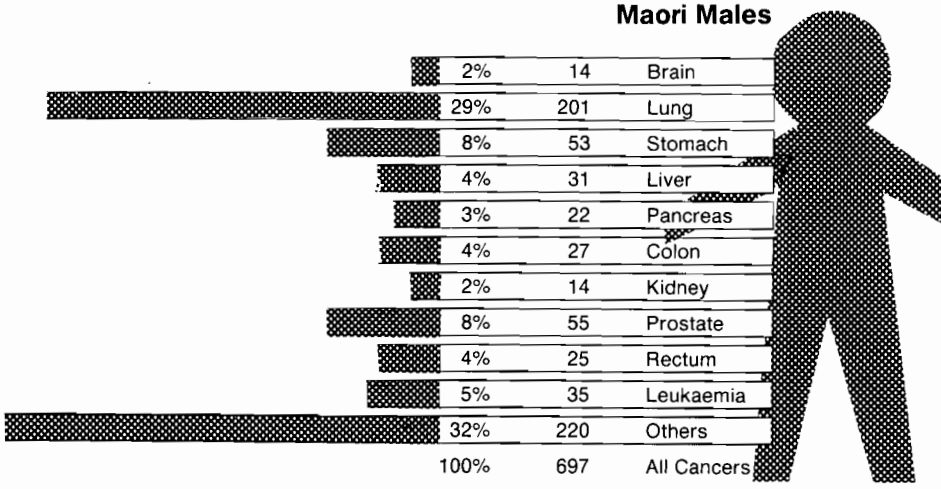
Testicular cancer is an uncommon site of cancer in both Maori and non-Maori but there has been an increase of 167% in Maori males from a position of being less common in Maori males to one in which it is now 60% more common in Maori than non-Maori. The reasons for this are unclear.

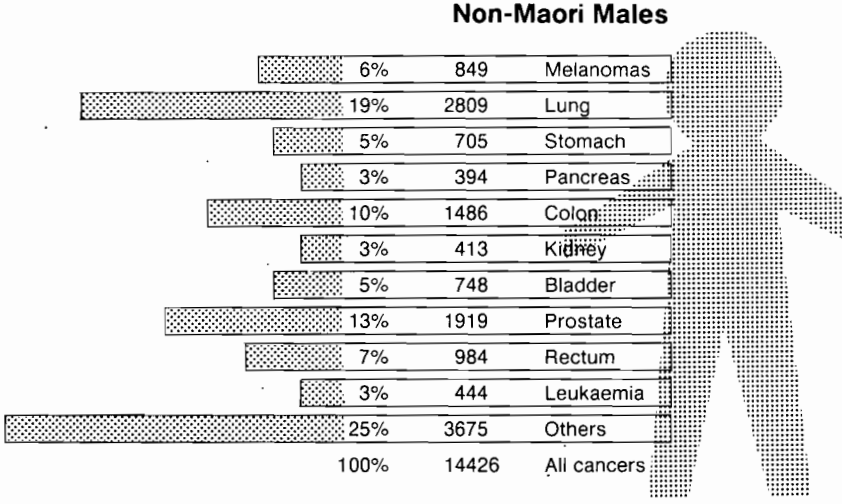
In general, cancer of the prostate and cancer of the other female genital organs (uterus and ovaries) are more common in Maori people and an important factor here relates to obesity (58).

Few cancers have actually become less common in Maori people but amongst these are included cancer of the pancreas, bladder, kidney and ureter. Again, the reasons for these small decreases are unclear.

FIGURE 38

LEADING SITES OF CANCER, MAORI



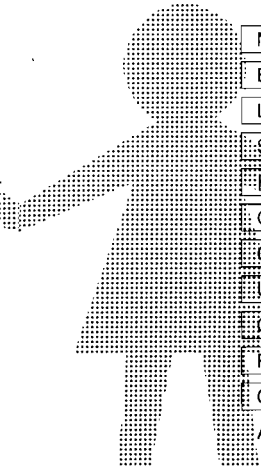


D NON-MAORI POPULATION, 1981-83

Maori Females

Breast	147	21%
Lung	114	16%
Stomach	45	6%
Liver	12	2%
Pancreas	18	3%
Colon	31	4%
Ovary	34	5%
Uterus	45	6%
Cervix	88	12%
Rectum	13	2%
Others	162	23%
All Cancers	709	100%

Non-Maori Females



Melanomas	1196	9%
Breast	3206	23%
Lung	880	6%
Stomach	463	3%
Pancreas	306	2%
Colon	1886	14%
Ovary	565	4%
Uterus	568	4%
Cervix	559	4%
Rectum	741	5%
Others	3572	26%
All Cancers	13942	100%

Cancer has an important impact in the Maori community, particularly for Maori females. Cancer in Maori women is the single most important cause of potential years of working life lost and this situation has increased in the past decade. The implications of this burden in terms of the Maori family and social structure may be far reaching, for Maori women have such an important role not only in parenting and nuturing but also in the leadership role they play in the Maori community.

Most cancers are usually caused by more than one factor but amongst the most important would have to be smoking, diet and alcohol (79). Campaigns to reduce the level of smoking, promote healthy eating and reduce obesity, and to moderate the consumption of alcohol are all likely to have an important impact in the Maori community if implemented in a sensitive and culturally appropriate way.

Health Risks

HIGHLIGHTS

- Maori death rates from diabetes, rheumatic and hypertensive heart disease are 4-5 times higher than non-Maori rates.
- Respiratory diseases including asthma, chronic bronchitis and emphysema are excessively high in the Maori population.
- The social and economic disadvantages of Maori people are reflected in their poorer standards of health.
- Alcohol-related deaths are 2.8 times higher for Maori males than non-Maori but Maori females record half the non-Maori rate.
- Maori people aged 20-64 years are on average both heavier and more obese than non-Maori people.

HE WHAKATŪPATO

Anei te rārangi o ngā mate e pāpāria ana te iwi:

- He mate ate kakā (Hepatitis B)
  - te taunga atu o tēnei mate ki te ate
  - he mate taumaha
  - he maha kei te māuiui
  - he maha anō kei te kawe i te ngārara o taua mate – mā ēnei e tuku atu te mate ki ētahi atu
- He hēmanawa, he huangō, he wharowharo, he kiki nō te uma
- He nui rawa nō te huka he mate manawa
- Ko ngā taringa o ngā tamariki
- Ngā wāhine – 15-24 ngā tau – he tino kaha rawa te kai hikareti.

- Dietary studies in Maori people are few but indicate higher intakes of both fat and energy (calories/kjoules).
- There is virtually no information on levels of physical activity in Maori people.
- The percentage of Maori women aged 15-44 years reporting that they were regular smokers at the 1981 census was two times higher than non-Maori women.
- There is a high prevalence of ear disease in Maori children.
- The incidence and mortality from rheumatic heart disease in Maori people remains unacceptably high.
- Hepatitis B infections and chronic carriage of the virus are extremely high in Maori people compared with other western countries and are the cause of serious liver disease.
- There is no information available about AIDS in Maori people.

- Kāore anō kia tirohia pēhea ngā kai a te Māori, engari, ae mārika, he mōmona, he katete rawa te nuinga.
- Kāore he kōrero mō ngā mahi whakauaua i te tinana kia pakari ai.
- Kāore anō kia kao he kōrero mō te mate parekore (AIDS).

Although there have been marked improvements in the mortality statistics of the Maori population since 1970, particularly in the areas of respiratory, heart and cerebrovascular disease and childhood mortality, admissions to hospitals remain almost twice as high as non-Maori rates for most major causes.

The major causes of death in Maori people are accidents in the younger age-groups and ischaemic heart disease, cancer and chronic lung disease in older age-groups. In addition, disproportionate mortality and morbidity rates are noted for diabetes and hypertensive heart disease. Whilst all the above diseases are characteristic of westernized countries and have there-

fore been equated with affluence, their occurrence in the least affluent sector of New Zealand society, namely Maori people, suggests other important factors. There is much evidence to support the view that lifestyle factors such as excesses of food, alcohol and cigarette smoking are highly important in their causation. It has been calculated for instance, that smoking causes almost 20% of all deaths (80) and that 35% of all cancer is due to diet (79). Alcohol too plays a significant role in road accidents and mental health disorders.

TABLE 58

SELECTED CAUSES OF DEATH, 1980-84

Numbers and age-standardised rates per 10,000 population

Cause	Male				Ratio M/N-M	Female				Ratio M/N-M
	Maori		Non-Maori			Maori		Non-Maori		
	Number	Rate	Number	Rate		Number	Rate	Number	Rate	
Coronary heart disease	822	28.2	20698	23.7	1.2	503	17.1	14220	10.6	1.6
Chronic rheumatic heart disease	37	1.0	209	0.2	5.0	63	1.4	358	0.3	4.7
Hypertensive disease	66	2.4	524	0.6	4.0	75	2.5	737	0.5	5.0
Other forms of heart disease	218	8.1	2147	2.7	3.0	115	4.1	2706	1.9	2.2
Cerebrovascular disease	195	7.3	5760	6.6	1.1	245	8.2	8432	5.9	1.4
Cancer of the lung	244	8.2	4280	4.9	1.7	151	4.7	1308	1.3	3.6
Pneumonia	111	5.1	2299	2.9	1.8	81	2.7	2935	2.0	1.4
Asthma	70	1.8	525	0.7	2.6	83	1.7	488	0.5	3.4
Chronic obstructive respiratory disease (including bronchitis and emphysema)	179	7.2	3940	4.3	1.7	116	3.8	1367	1.1	3.5
Cancer of the cervix						69	1.6	418	0.5	3.2
Tuberculosis (including late effects)	28	0.8	114	0.1	8.0	17	0.7	88	0.1	7.0
Viral hepatitis	10	0.3	26	0.04	7.5	4	0.1	21	0.03	3.3
Diabetes	135	4.4	794	0.9	4.9	122	3.7	867	0.7	5.3
Obesity	13	0.3	20	0.03	10.0	8	0.2	39	0.1	2.0
Diseases of the urinary system	47	1.9	604	0.9	2.1	48	1.4	789	0.7	2.0
Alcohol-related deaths (including alcoholic cirrhosis)	70	1.7	493	0.6	2.8	6	0.1	146	0.2	0.5
Motor vehicle accidents	291	4.4	2139	2.8	1.6	112	1.6	874	1.1	1.5
Suicide	55	0.9	1215	1.5	0.6	20	0.3	472	0.6	0.5
Homicide	24	0.4	107	0.1	4.0	11	0.2	70	0.1	2.0

TABLE 59

SELECTED CAUSES OF ADMISSION TO PUBLIC HOSPITALS, 1984
Numbers and age-standardised rates per 10,000 population

Cause	Male				Ratio M/N-M	Female				Ratio M/N-M
	Maori		Non-Maori			Maori		Non-Maori		
	Number	Rate	Number	Rate		Number	Rate	Number	Rate	
Coronary heart disease	298	38.9	8494	52.1	0.7	217	28.3	4323	20.8	1.4
Acute rheumatic fever and chronic rheumatic heart disease	104	6.8	173	1.2	5.7	159	11.8	251	1.6	7.4
Hypertensive disease and other forms of heart disease	597	76.9	4500	26.5	2.9	544	65.6	3995	18.5	3.5
Cerebrovascular disease	159	22.0	3453	19.7	1.1	203	24.8	3574	15.8	1.6
Cancer of the lung	215	28.5	2145	12.6	2.3	79	9.6	700	3.6	2.7
Pneumonia	707	58.3	2101	15.1	3.9	514	42.9	1573	10.6	4.0
Asthma	1219	81.2	4533	37.3	2.2	1239	88.2	4110	31.4	2.8
Chronic obstructive respiratory disease (including bronchitis and emphysema)	265	30.2	2722	15.9	1.9	259	29.8	1306	6.8	4.4
Tuberculosis	50	5.4	185	1.2	4.5	51	5.0	124	0.7	7.1
Viral hepatitis	23	2.0	57	0.4	5.0	12	0.8	42	0.3	2.7
Diabetes	231	27.9	1328	8.1	3.4	257	20.7	1448	8.0	2.6
Obesity	31	2.9	36	0.2	14.5	43	3.6	175	1.1	3.3
Diseases of urinary system	391	34.7	3204	20.4	1.7	531	42.4	2753	17.2	2.5
Cancer of the cervix	.	.	.	.	.	115	10.9	690	4.1	2.7
Inflammatory disease of female pelvic organs	.	.	.	.	.	508	31.5	2384	15.2	2.1
Other disorders of female genital tract	.	.	.	.	.	1403	107.0	10915	68.0	1.6
Pregnancy with abortive outcome	.	.	.	.	.	1161	67.4	7349	46.5	1.4
Complications of pregnancy, childbirth and the puerperium	.	.	.	.	.	6718	374.5	30127	189.8	2.0
Motor vehicle accidents	1394	86.4	6708	43.2	2.0	569	36.1	2680	17.5	2.1
Self-inflicted injury	131	7.8	870	5.4	1.4	198	11.5	1330	8.5	1.4
Injury purposely inflicted by other persons	411	25.1	1456	9.3	2.7	259	16.6	357	2.5	6.6

Tables 58 and 59 highlight particular areas of concern. Deaths from rheu-

matic and hypertensive heart disease are 4 to 5 times higher in Maori people than non-Maori, yet both are highly preventable and treatable. This suggests that Maori people may be unaware of preventive measures or else access to appropriate medical care is deficient.

Respiratory diseases are also excessively high in Maori people, particularly women, and smoking is clearly a highly important factor here but familial and genetic factors require further enquiry. Deaths from asmtha, chronic lung disease and cancer of the lung are 2 to 4 times more common in Maori people, whilst deaths due to diabetes mellitus are 5 times the non-Maori rate. These mortality differences are also reflected in the Maori rates for admission to public hospitals. However, the single most important cause of admission relates to asthma (2458 discharges), followed by motor vehicle accidents (1963 discharges). Apart from hospital discharges relating to pregnancy and childbirth and injuries, diseases of the lung were the most important medical reason for admission to public hospitals. Discharge rates for these conditions were up to 4 times more common in Maori people.

EFFECT OF SOCIO-ECONOMIC FACTORS ON MAORI HEALTH

It has been generally felt within the Maori community that poverty, socio-economic, cultural and self-esteem factors are among the most important reasons why Maori people experience a greater degree of ill health than do non-Maori people. There is certainly much evidence in favour of this view given the high misery factor associated with unemployment, low earning capacity, poor housing, low educational attainment and racism (81). It has been suggested that these factors explain to a large degree why Maori people seem to adopt and persist with lifestyle habits which are well known to be associated with ill-health. However, socio-economic status, as judged by one's earning capacity and occupational group, can explain only 20% of the differences in mortality between Maori and non-Maori (25). The problem here is that the term "socio-economic" is too restrictive and provides no measurement of the impact that other factors such as unemployment, housing, educational achievement, racism and culture may have. Each one of these factors is likely to be important in its own right.

The concept of "socio-economic status" is very much a western one and would have quite different meaning if applied in a Maori sense. Socio-economic status in western terms refers primarily to one's job and earning capacity. Professional people for instance, are the highest money earners in New Zealand society and would therefore have the highest socio-economic

status. There is abundant evidence to show that such people and their families enjoy an above average physical health experience in contrast to those in the lowest social classes (82). Indeed, the health experience of children from economically privileged Maori and non-Maori families is the same (83).

The majority of Maori people are in the lower socio-economic classes 5 and 6 (see Table 4). At the other end of the scale, in social classes 1 and 2 there are proportionately 5 times more non-Maori than Maori people. Barriers of money and class not only affect people at the lowest end of the socio-economic scale because of their poorer lifestyle,environment and low self-esteem, but also affect the person's ability to use the health services that are available. Being able to reach and use health services depends on whether a person can pay for the transport and the doctor's fee, and hardships occur as much in an urban environment as in a rural area.

Socio-economic disadvantage is associated with poor housing, unemployment, poorer educational attainment and over representation in penal institutions. A society which measures personal worth in terms of money must accept a significant degree of personal misery in those people who are poor (81). Such people will have a greater need to rely on the state for support and this dependency in itself can be very demeaning for individuals and families. The association of unemployment to ill-health is a very strong one and particularly relevant to the Maori community today. Little heed is taken concerning the health consequences for those made redundant when factories are closed or staffing levels reduced.

Self-esteem and personal worth have important cultural connotations. Maori social status embraces all aspects of the Maori world and its spiritual dimensions. Importantly, factors such as genealogy, the Maori language and values, the appreciation of the land and environment, arts, craft, etiquette, protocol, extended family relationships, marae customs and traditions, would all be important.

A Maori person with a strong cultural base and an extensive family support network would socially be the most advantaged in Maoridom compared to the Maori person who had adopted largely western values. Self-esteem and personal worth to Maori people therefore equate with a significant cultural component. In the largely monocultural society within which we live, the cultural component has been gradually devalued or lost and in many Maori people, particularly the younger generation, there is alienation from both Maori and western societies and the feeling that life has little meaning.

Gangs provide an identity and structure for some of these Maori people even though the image of such groups is a strongly antisocial one.

Social and economic inequities are of fundamental importance when one considers standards of Maori health. Improvements are only likely to occur when these inequities are satisfactorily redressed and more credence is given to the value of culture as an essential component of personal worth and good health. Cultural barriers to good health may be important and explain in part why many Maori people are reluctant to make use of available health services.

ALCOHOL

Available statistics would suggest that Maori people suffer excessive morbidity and mortality from alcohol related causes. Indeed during the 1970s, the estimated Maori alcohol related death rate was 75% higher than the non-Maori rate (84). Age-standardised rates for the period 1980-84, show alcohol related deaths (including alcoholic cirrhosis), to be 2.8 times greater in Maori males than non-Maoris. The rate for Maori females however was half that for non-Maori females. Alcohol is the commonest cause of admission of Maori males to mental hospitals and rates have increased four-fold since 1970.

There is enough evidence now to suggest a strong causal relationship between alcohol and motor vehicle accidents (60). Motor vehicle accidents are the second most common cause of admission for Maori people to hospital and the cause of an excessive number of Maori deaths. About half of all fatalities from road crashes are alcohol related and the rate of Maori arrests for drink-driving is 4.5 times higher than the non-Maori rate (85).

It is more difficult to be precise about the relationship between excessive alcohol intake and its contribution to excessive energy intake and therefore its role in conditions such as diabetes, obesity and heart disease. However, Birkbeck did note in the 1977 national diet survey, that alcohol made a significant contribution to total energy intake in some people (86). Recent evidence too would suggest alcohol is a significant risk factor in hypertension and certain cancers (breast, rectum, mouth, oesophagus and liver) (55, 87, 88).

In terms of alcohol consumption, a 1978 national survey indicated that a smaller proportion of Maori people were regular drinkers than was the case with non-Maori (89). Maori drinkers also reported drinking less frequently on average than did non-Maori, but the amount consumed during a drinking session was nearly twice as much as a non-Maori. Maori women

by comparison are not heavy drinkers – indeed, 4 out of 10 in a large survey carried out by the Maori Women's Welfare League were found to be non-drinkers (13). However, in 20% of young urban Maori women, drinking was heavy as gauged by the consumption of more than 5 bottles of beer at a time regularly. The consumption of alcohol by young Maori women was almost twice as much as non-Maori women.

Perhaps more disturbing though is the high prevalence of alcohol consumption in New Zealand secondary school children, particularly males, and the fact that there is a predominance of Maori males amongst the heaviest drinkers (90). Alcohol exacts a heavy toll on the Maori community, not to speak of the money required to support such a habit.

OVERWEIGHT AND OBESITY:

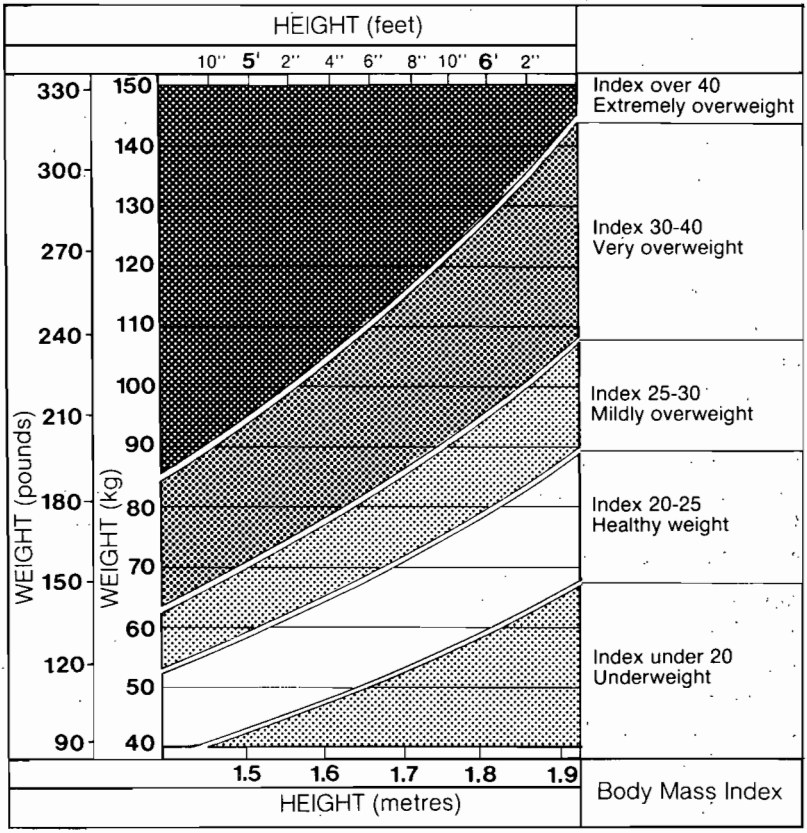
Obesity is an important risk factor which has been linked to coronary artery disease, high blood pressure, diabetes mellitus, gallstones and cancer (particularly of the breast, bowel, uterus and prostate) (55, 58, 91) conditions which are generally more common or increasing in Maori people. Deaths and hospital admissions due to obesity are strikingly more common in Maori, especially males, where the rate for hospital admissions is 14.5 times that for non-Maori, although the number of cases is small (31 Maori male hospital discharges in 1984).

Obesity is a condition of excess body fat and the measurement of body weight alone is only a crude indicator of obesity. The most widely accepted measure for assessing overweight and obesity is body mass index, sometimes known as the Quetelet index (weight in kilograms/height in metres squared). Overweight is defined as a body mass index of 25-30 and obesity as over 30 (55).

Studies in New Zealand have shown that weight increases by about 5kg for the average New Zealand adult between the age of 20 and 40 years, and falls slightly after 50 years of age (86). Between the ages of 20 and 64 years, Maori people are on average both heavier and more obese (see Table 60) than non-Maori. In a survey carried out by the Maori Women's Welfare League, in 1,177 Maori women, the majority considered themselves overweight and 1 in 8 very overweight (13). However, very few dieted as a response to their obesity – indeed only 5 out of 1,177. Using data from the reports of the Maori Women's Welfare League and the National Diet Survey, three-quarters of Maori women are overweight (BMI >25) and nearly half are obese (BMI >30). Obesity is least prevalent in <30 year old Maori women (29%) and greatest in the >45 year olds (56%) (13, 86).

FIGURE 39

BODY MASS INDEX



To obtain your exact Body Mass index, divide your weight in kilograms by your height in metres squared (ie, multiplied by itself)

Source: Health Facts: Weight and Health, Department of Health

NUTRITION

The Birkbeck study in 1977 is the only comprehensive dietary study undertaken in New Zealand adults (20-64 years) (86). This was a random survey of the New Zealand population during the months of September and October 1977 and included in this study were 1,669 (90.2%) people of European origin and 109 (5.9%) of Maori origin. Dietary data was collected using the 24 hour diet recall method of all food and drink consumed for a

period of 24 hours prior to interview. It was accepted that seasonal variations influenced food choices, that the numbers in the study were on the small side, especially when the groups were stratified for age and the number of Maori people was somewhat under-represented. However, with these reservations, this represents a very important study of New Zealand adult dietary intakes though it is now 10 years old and dietary habits may well have changed during this period.

Table 61 shows the daily intakes of carbohydrate, fat, protein and energy in Maori and non-Maori people. In the younger age-groups (20-49 years) Maori males and females consume more energy and fat and generally less carbohydrate than non-Maori males and females. Whilst there is a tendency for Maori people to eat more protein the differences from non-Maori is less.

TABLE 60

MEDIAN BODY WEIGHTS AND BODY MASS INDICES IN MAORI AND NON-MAORI

Ages		Body Weight (Kg)		Body Mass Index (Kg/M2)	
		Maori	Non-Maori	Maori	Non-Maori
20 - 29	Male	84.0	73.0	28.1	23.6
	Female	68.5	59.5	25.8	22.4
30 - 39	Male	85.0	75.0	28.4	24.8
	Female	70.3	60.5	27.1	23.1
40 - 49	Male	81.6	78.0	27.9	25.8
	Female	77.0	64.5	30.5	24.6
50 - 64	Male	102.0	76.0	35.2	25.7
	Female	69.0	63.2	27.3	24.7

Source: New Zealanders and their diet – Birkbeck (1977)

Table 62 shows the proportion of energy intake derived from carbohydrate, fat and protein. This shows that Maori people eat proportionally more fat than non-Maori, reaching 50% in the 50-64 year age-group. This high consumption of fat in Maori people is balanced by proportionately less carbohydrate in the diet. The proportion of protein is generally the same for both Maori and non-Maori people.

TABLE 61

MEDIAN DAILY INTAKES OF CARBOHYDRATE, FAT, PROTEIN AND ENERGY IN MAORI AND NON-MAORI

Ages		Cho (g)		Fat (g)		Protein (g)		Energy (MJ)	
		Maori	Non-Maori	Maori	Non-Maori	Maori	Non-Maori	Maori	Non-Maori
20 - 34	Male	359	376	181	165	151	123	16.9	15.7
	Female	199	222	116	106	81	79	9.4	9.2
35 - 49	Male	275	316	160	146	102	108	16.9	13.6
	Female	223	200	108	98	86	75	9.3	8.5
50 - 64	Male	152	268	103	125	76	93	8.8	11.4
	Female	126	201	83	86	50	68	6.5	7.8

Source: New Zealanders and their diet – Birkbeck (1977)

TABLE 62

PROPORTIONATE ENERGY SOURCES (PERCENTAGES) IN MAORI AND NON-MAORI

Ages		Carbohydrate (%)		Fat (%)		Protein (%)	
		Maori	Non-Maori	Maori	Non-Maori	Maori	Non-Maori
20 - 34	Male	39	43	44	43	17	15
	Female	36	41	48	44	16	15
35 - 49	Male	37	42	49	44	14	15
	Female	40	40	44	44	16	16
50 - 64	Male	33	41	50	44	17	15
	Female	34	43	51	42	14	15

Source: New Zealanders and their diet – Birkbeck (1977)

The principal sources of fat in the New Zealand diet are animal meats (30-41%) and milk products (21-34%), of which butter contributes about one half. The sources of carbohydrate in the New Zealand diet are varied with the largest single contribution coming from baked goods. However, important contributions are provided by vegetables, fruit, drinks (milk, soft drinks and alcohol) and bread. With respect to protein intake, two-thirds is of animal origin (80% animal meats) and one-third of vegetable origin, 40% of this coming from bread.

Table 63 shows the daily intakes of sugar, cholesterol, saturated and poly-unsaturated fats in Maori and non-Maori people. In general, Maori males and females consume less sugar than non-Maori and in both groups consumption falls with age. The consumption of cholesterol is variable with a tendency for younger Maori males (20-49 years) to consume more saturated fat. The consumption of poly-unsaturated fat is similar at all age-groups for both the Maori and non-Maori populations.

The principal sources of sugar in the New Zealand diet are sugar itself, soft drinks, fruit and baked goods. The most important contributions to saturated fat come from animal meats (particularly beef) and dairy products (particularly butter). Poly-unsaturated fats on the other hand come from a variety of sources, the most important of these being meat (pork and beef), margarine, vegetable oils, sauces and dressings. The principal sources of cholesterol are eggs, dairy products and beef.

TABLE 63

MEDIAN DAILY INTAKES OF SUGAR, CHOLESTEROL, SATURATED AND POLYUNSATURATED FAT IN MAORI AND NON-MAORI

Ages		Sugar (g)		Cholesterol (mg)		Saturated Fat (g)		Polyunsaturated Fat (g)	
		Maori	Non-Maori	Maori	Non-Maori	Maori	Non-Maori	Maori	Non-Maori
20 - 34	Male	58	83	752	630	85	74	16	16
	Female	38	53	315	377	49	50	9	9
35 - 49	Male	62	70	801	530	72	66	13	13
	Female	38	47	372	377	49	45	8	9
50 - 64	Male	33	55	375	520	40	59	11	12
	Female	16	40	406	341	32	39	9	8

Source: New Zealanders and their diet – Birkbeck (1977)

Table 64 shows the daily intakes of calcium, calciferol (Vitamin D), ascorbate (Vitamin C) and iron in Maori and non-Maori people. At all ages Maori males and females consume less calcium and females less calciferol. Ascorbate intakes are also less in both Maori males and females whilst the intakes of iron are generally much the same in Maori and non-Maori people, apart from the 50-64 year age-group where the intake is somewhat less in both Maori males and females.

The principal source of calcium in the New Zealand diet is milk products, milk and cheese contributing almost half the total calcium intake. Bread also makes a significant contribution. With respect to iron, the single most important source is beef meat (26-34%).

TABLE 64

MEDIAN DAILY INTAKES OF CALCIUM, CALCIFEROL (VITAMIN D), ASCORBATE (VITAMIN C) AND IRON IN MAORI AND NON-MAORI

Ages		Calcium (mg)		Calciferol (mcg)		Ascorbate (mg)		Iron (mg)	
		Maori	Non-Maori	Maori	Non-Maori	Maori	Non-Maori	Maori	Non-Maori
20 - 34	Male	852	993	1.2	1.2	43	88	20	19
	Female	641	658	0.5	0.8	64	65	12	12
35 - 49	Male	566	845	1.8	1.1	55	79	15	16
	Female	575	616	0.7	0.9	54	61	10	11
50 - 64	Male	615	722	0.4	1.0	24	59	9	14
	Female	328	608	0.2	0.8	22	69	9	11

Source: New Zealanders and their diet – Birkbeck (1977)

Whilst it is accepted that the data presented here, particularly for Maori people, is derived from a small number of studies, nevertheless there are notable differences in dietary intakes between Maori and non-Maori people. These may well be important when one considers the excess mortality from both cancer and heart disease generally experienced by Maori people. National nutrition guidelines suggest we should reduce our energy intakes, eat more complex carbohydrates and fibre, and eat less fat (92). That these small studies have shown Maori people consume more energy and fat, particularly saturated fat, has not previously been highlighted, though in studies undertaken in 1941, Maori families consumed about 50% more energy from meat (the most important source of fat) than non-Maori, and 70% less fruit and vegetables (73, 74). If these findings are substantiated, they could form the basis of preventive educational initiatives for both cancer and heart disease in Maori people.

There has been much recent attention paid to osteoporosis in post-menopausal women and if calcium and calciferol intakes are important, then Maori women would seem especially prone.

There is an urgent need to update the dietary information in New Zealan-

ders which is now 10 years old. Ideally the study should be a large one and include a greater number of Maori people.

EXERCISE

Physical activity reduces the risk of coronary heart disease and has a beneficial effect on coronary disease risk factors, such as blood pressure and blood fats (55). In addition, those who exercise are more likely to be lean and non-smokers. Exercise is also an important means for weight control for those with sedentary occupations, and can improve general health and well-being.

There has always been a tradition in New Zealand, especially amongst the young, of participation in sporting activities. In this respect, Maori children and adolescents have often performed with great distinction and there is much to be said for the promotion of sport and recreation amongst Maori people as a means of promoting self-esteem. There are many excellent programmes that encourage Maori youth to play netball, rugby and to participate in the martial arts. The Department of Health has provided funding to the Maori Women's Welfare League to encourage Maori women to adopt a healthy lifestyle. The strategy the League is taking is through netball. However, there is room for the whole concept of exercise to be expanded and to include older Maori people – hikoi (walking) is an example.

Data on levels of activity and fitness in New Zealanders is negligible, though anecdotally it is believed that the proportion of adults now engaging in a variety of regular physical activities has increased steadily in recent years (93). A recent survey in Auckland showed that approximately one-third of people aged 35-64 years take regular physical exercise (94). What proportion of these exercisers were Maori is unknown, but likely to be small as exercising by the health conscious is more a middle class activity. The recently commissioned lifestyle survey by the Hillary Commission will provide much needed information on the levels of fitness in all New Zealanders.

SMOKING

A greater proportion of the Maori population reported being regular cigarette smokers at the 1981 Census than did the non-Maori population (95).

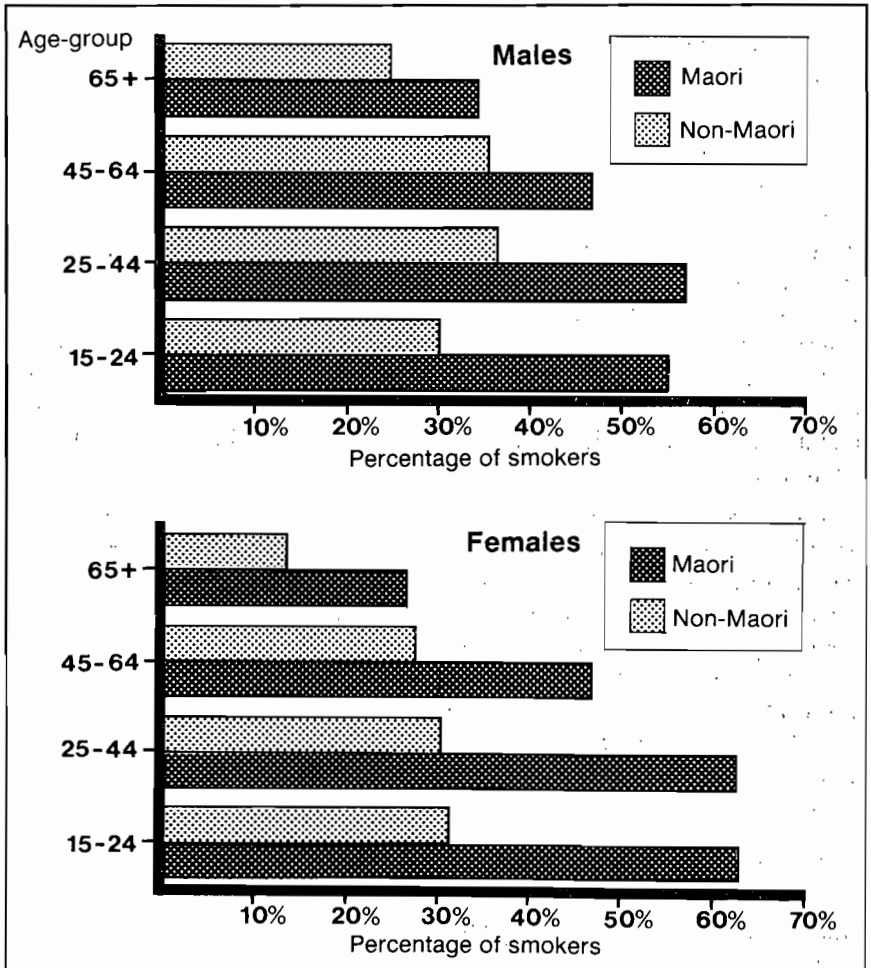
Of the total respondents aged 15 years and over, 53.5% of Maori males and 58.5% of Maori females were regular smokers compared with 33.1% of non-

Maori males and 27.3% of non-Maori females. Figure 40 shows the percentage of smokers by age-group, sex and race.

FIGURE 40

CIGARETTE SMOKING PRACTICE, MALES AND FEMALES, 1981 CENSUS

Regular smokers as a percentage of total respondents



Source: Bulletin on cigarette smoking, New Zealand census of Population and Dwellings, 1981

Of special significance is the high percentage of Maori women smokers. At ages 15-44 years, 63% reported that they were regular smokers compared to 31% of non-Maori women. Maori women have a lung cancer death rate 3.6 times higher than non-Maori women. Maternal smoking has been linked to low birthweight infants and a higher percentage of Maori infants are born at weights less than 2,500 grams.

INFECTIONS

Maori people have significantly higher rates of death and admissions to hospital for infectious diseases. However, there has been a significant reduction in the death rates in both the Maori and non-Maori population due to infectious diseases in the past decade, though Maori people are still nearly 4 times as likely to die, whatever the age. Respiratory infections are the major problem whether it be an infant with bronchiolitis or an elderly person with pneumonia or bronchitis. In 1984, acute respiratory infections and influenza accounted for 1,458 admissions of Maori people to hospital or 2.5% of the total. Diarrhoea and gastroenteritis were also notably higher in Maori infants. The illness and death in Maori people due to tuberculosis (96) and rheumatic fever (96a) still remains disproportionately high whilst diseases of the ear are the second most common cause for admission of Maori children to hospital in the ages 5-14 years (Table 46).

There are worrying aspects of the excess morbidity and mortality of these common infectious diseases in Maori people as most are readily treatable providing there is appropriate treatment in good time. It has been suggested previously that access to medical care is an important factor here and there is evidence that this occurs in Maori adults but interestingly not in infants (13, 39, 40, 97). It should not be forgotten however, that there may be familial or genetic factors which are operating. This has previously been suggested by Glass and others (98) who noted that lung function of Maori people was lower than that of European and that this seemed to be independent of smoking, occupational and environmental factors. As a generalisation however, infectious diseases are notably more common in the lower social classes and in third world countries. There are obviously many factors which could be considered as being relevant here but the possibility of disordered immunity requires comment. Alcohol and cigarette smoking have been associated with depressed immune function and these factors are likely to be most relevant in those Maori people who both smoke and drink alcohol excessively. The effects of passive smoking in children are unknown but conceivably may be of some significance given Maori women (mothers) have a high prevalence of smoking.

The high prevalence of ear disease in children is of concern, especially since deafness delays the acquisition of all language skills and impedes subsequent educational progress. Indeed, the consequences of childhood ear disease have more serious implications given the disproportionately high rates of hearing disability in Maori prisoners compared with non-Maori (99). In a study of predominantly Maori children in Whangarei (48), ear disease and hearing loss were common. Perhaps more telling, was the teacher's assessment that 44% of the study group were below average attainers and in all of these children, a hearing loss was demonstrated. In this study, most of the children came from families who lived in state rental units, many of them over-crowded and with no general practitioner's surgery in the area. Access to medical services was therefore difficult. As far as the overall picture of aural health was concerned, 75-80% of children greater than 2 years of age had evidence of ear disease. In a small study in Te Teko, ear disease was found to be the major health problem in children, increasing with age to adolescence (100).

The incidence and mortality from rheumatic heart disease remains unacceptably high given that methods of prevention and treatment have been available in New Zealand for many years. In Rotorua Hospital for instance, between 1971 and 1982 the average annual incidence for rheumatic fever was over 7 times greater in young Maori people than non-Maori in the 5-19 year age-group (101). Data from the Northland rheumatic fever register (102) is similar and furthermore, indicate that recurrent attacks of rheumatic fever are appreciably more common in Maori people. Indeed, the high recurrence rates of rheumatic fever experienced in the Gisborne area have been taken as evidence of substantial failure of rheumatic fever prophylaxis in the Gisborne area (103). There is an urgent need to determine the precise reasons for the continuing unacceptable discrepancy in morbidity and mortality from rheumatic heart disease in Maori people. Current programmes are either nonexistent or ineffective.

Hepatitis B infections are endemic in many parts of New Zealand and several studies have shown high rates of carriage and previous infection in Maori people (104, 105). Moreover, the prevalence of markers of previous infection is more than twice as high in Maori people than in non-Maori and hepatitis B carriage rate nearly 4 times the non-Maori rate. Thus not only are Maori people more likely to become infected but they are also more at risk of becoming carriers following acute infection. There is also a marked north/south gradient in infection risk (3:1) and areas where the Maori population is high are also areas of high hepatitis B infection (105). In New

Zealand, the highest rates are found in the Eastern Bay of Plenty and East Coast region and Northland, whilst low rates are recorded in the South Island. Acquisition of hepatitis B seems to occur most readily when children start primary school but this should not detract from the importance of hepatitis B acquired at birth from a carrier mother. Such acquisition (vertical transmission) is associated with a high incidence of hepatitis B carriage and chronic disease. It may seem amazing to some, but there are large communities in New Zealand where three-quarters of the children have evidence of hepatitis B infection at the time they leave school (105).

The importance of hepatitis B would be questionable if it were a benign disorder but this is not the case (106). It has been estimated that up to 10% of hepatitis B infections result in chronic illness which may lead to irreversible destruction of the liver (cirrhosis) or the development of liver cancer. It should not be surprising then, given the high incidence of hepatitis B in the Maori community, that liver cancer is approximately 3 times that seen in non-Maori people and there is a north/south gradient to this risk (76). Each year approximately 100 New Zealanders die from complications due to hepatitis B and a disproportionate number will be Maori people (106). A new and potentially serious development in hepatitis B has been the discovery of the delta agent, a virus which attacks the liver during the presence of the hepatitis B virus (107). The result is more serious hepatitis B infections and complications and consequently a much higher mortality rate. Communities in which there are a large number of carriers, are potentially at risk of becoming ravaged by the delta virus. This has not happened in New Zealand but where it has happened in other countries, the consequences have been disastrous (108).

The good news has been the development of effective vaccines to prevent against hepatitis B infection and this clearly is a problem of immediate concern in children in so-called high risk areas in New Zealand. The current immunisation programme using a low dose strategy will help prevent many new cases of hepatitis B and the chronic problems that might follow.

Infections with the AIDS virus have risen steadily in the last 2-3 years and as at 6 May 1988, 77 cases of fully developed AIDS had been reported with 36 deaths. There were also 343 New Zealanders who were positive for AIDS infection. There are no statistics saying how many Maori people have become infected with AIDS. However, there is a significant Maori population in Australia, particularly Sydney, one of the centres with a higher prevalence of AIDS world-wide. There is also considerable trans-Tasman

mobility among Maori people and hence the potential for transporting AIDS into the Maori community in New Zealand is ever present.

Whilst AIDS and hepatitis B are most readily transmitted through infected blood or blood products, sexual transmission of these serious diseases is well known. There are other sexually transmitted diseases such as gonorrhoea, non-specific urethritis and chlamydia, which are common causes of morbidity (pelvic inflammatory disease, sterility) yet rarely threaten life. In a small study in Northland, over 50% of the cases of gonorrhoea and non-specific urethritis in the 15-19 year olds were Maori (109).

DISCUSSION

There are many health risks affecting the Maori community and if it were possible to minimise these risks, there may well be a significant return in terms of good health, both in the short and longer term. Major emphasis has been placed on the so-called lifestyle factors, smoking, diet and alcohol. The importance of these risk factors cannot be over-emphasised, whatever the principal underlying reasons may be for their adoption and continuation.

There would seem little doubt that social, economic and cultural factors are of major significance but it is only likely that these factors will be changed by political action which will give Maori people a more equal status in New Zealand society. There is much that can be done about the common and important lifestyle factors such as smoking, alcohol and diet. However, what have been lacking have been culturally appropriate and sensitive programmes directed at these risk factors. Much could be learned from the lead that has already been taken by the Waiora project which has promoted anti-smoking messages in an appropriate cultural context and the Maramatanga Waananga programme which rehabilitates Maori youth with drug abuse problems by equipping them with cultural skills and renewed self-esteem (110). The success of this latter programme has been remarkable yet resources to support it have been inadequate. A significant reduction in the prevalence of smoking and drinking within the Maori community would have immense benefits, not the least of these being the financial savings associated with the discontinuation of these habits. The youthfulness of those Maori people smoking and drinking is of much concern because the morbidity and mortality from smoking-related diseases in the decades to come will be substantial. The impact of cancer in Maori women has already been highlighted and programmes to prevent smoking in young Maori people, especially females, have much to recommend.

The question of diet and disease in Maori people has not been seriously tackled though the Waiora Trust is currently embarking on programmes that are culturally relevant. The problem with diet is that there is insufficient data of a high quality to be guided by, but what information we have would suggest that Maori people over-consume energy and that this is related to a higher consumption of fat, particularly from animal meat and butter.

Traditional Maori foods have much to be recommended and are compatible with national dietary guidelines (92). Kai-moana (seafoods) are highly recommended as sources of protein, and omega-3 oils in these foods have recently been found to have protective qualities against ischaemic heart disease. Tuna (eels) too are a delicacy and to be recommended as a fish and protein source. There is current emphasis on the benefits of complex carbohydrates and New Zealanders are being urged to eat more fruits, vegetables and cereals. Whilst cereals are not traditional Maori food sources, root crops such as potatoes and kumaras and leafy green vegetables such as puha and watercress, certainly are. Berry fruits might also be regarded as the Maori equivalent of nuts. There would seem much to be gained then by the greater promotion of traditional Maori foods within the Maori community and less emphasis on the many processed and prepacked foods that tempt us in the supermarkets.

Finally, infectious diseases are not the overwhelming problem they were at the turn of the century. Nevertheless, there are infectious diseases which were unknown until recent times (AIDS) and others which may well have been present for longer than appreciated (hepatitis B). Maori people have disproportionately high rates of infection and social and economic factors have usually been cited as important reasons, including the important question of access to medical care. However, it needs to be established whether immunity problems are relevant and whether there are genetic factors which make Maori people much more susceptible to infection. There is also a need for information relating to AIDS and other sexually transmitted diseases in Maori people and more research into the reasons why Maori people seem to have so much hepatitis B, why certain regions in New Zealand are more affected and why there is such a sharp increase at the time youngsters start school. If more were known about the methods of cross-infection in hepatitis B then alternative means other than vaccination could be employed to step up the campaign against it.

The relationship between culture and health is a difficult one to gauge. It is reasonably easy to understand that cultural factors may be important in determining whether Maori people make use of available health services or

not. However, there are no objective measurements of this or of Maori culture. However, an index might well be constructed using variables such as Whakapapa (genealogy), Reo (language), involvement in Maori activities, understanding of Tikanga Maori (Maori procedures) and appreciation of Te Ao Turoa (environment). The same cultural index might also be considered an appropriate scale of Maori wellness. Perhaps the major emphasis however, should be on the development of culturally sensitive and appropriate programmes that enhance Maori well-being. These will require the participation and skills of both Maori and non-Maori communities and their experts.

Whakatauki:

"Nau te rourou, naku te rourou, ka ora ai te iwi."

Proverb:

"With your basket and my basket we will ensure the people will live."

Recommendations

Important improvements in Maori standards of health have occurred in the past decade, notably improved life expectancy from birth and reduced overall mortality. However, there still remain areas of major concern. Maori people are grossly disadvantaged socially, economically and culturally, as evidenced by their high levels of unemployment, low earning capacity, poorer educational attainment, low home ownership, over-representation in penal institutions and high rates of physical and mental ill-health and accidents. The high level of stress experienced by many Maori people is reflected in their prevalence of lifestyle risk-taking (cigarettes, alcohol and food), mental disorders and violent behaviour. Access to health care is less than adequate for many and relates to both cost and cultural factors.

If Maori standards of health are to be improved in any substantial way in the short term, then jobs are required and access to health care improved. In the longer term however, the most substantial benefits to well-being will come about by reducing the level of lifestyle risk-taking and accidents and by improving the status of Maori people socially, economically and culturally.

It is recommended that:

1. **The principles of the Treaty of Waitangi be incorporated into the constitutions and terms of reference of all groups and organisations involved in health care.**

   This would allow major inequities in health that currently exist between Maori and non-Maori to be addressed by more effective involvement of Maori people in health planning and delivery, by more realistic allocation of resources to Maori health, by more emphasis on health promotion and disease prevention and by recognising culture as a basis for health. The Treaty of Waitangi is not seen as the panacea for all Maori ills but rather the basis for forward planning in health, with the aim that all New Zealanders should enjoy equal opportunities for well-being.

2. **Urgent efforts be made to develop Rangatahi (youth) work schemes nationwide.**

Unemployment causes severe stress and poor self-esteem and strikes right at the heart of many Maori health problems. Employment opportunities need to be improved urgently if levels of mental illness, lifestyle risk-taking and violence in the community are to be minimised.

3. **Maori health initiatives, particularly at a Marae, Hapu or Iwi level, be adequately resourced with respect to people, information, skills and finance.**

   Such initiatives will play an increasingly important role in promoting health and well-being, screening for early disease, and providing information about health services.

4. **Culturally sensitive and relevant programmes be developed to target major health risk areas (smoking, alcohol, overweight, stress, accidents, asthma, heart disease and cancer) and to screen for early disease (high blood pressure, diabetes, cervical cancer).**

   Each of these risk factors exacts a high toll within the Maori community in terms of death, sickness and anti-social behaviour. Whilst national efforts aimed at all New Zealanders will help, specific efforts targeted within the Maori community are important and urgently required. Health education is the key and will involve many groups, both Maori and non-Maori, if attitudes are to be changed. It will be particularly important to promote culturally appropriate messages - for instance, smoking and alcohol should be discouraged as they have never been part of traditional Maori cultural activities. By contrast, traditional Maori foods should be strongly promoted as excellent sources of sustenance and Hauora (health).

5. **Special efforts be made to improve Maori women's health.**

   High levels of illness due to cancer, heart disease and lung disease are unacceptable and likely to become even worse in the next decade. Specific action is required to curb the high levels of smoking in young Maori women; to screen for high blood pressure, cervical cancer, diabetes and overweight; and to provide parenting skills and support for the many young and often solo Maori mothers. Initiatives may well be developed through Iwi, Hapu and Whanau action or through networks such as the Kohanga Reo, Maori Nurses' Association or the Maori Women's Welfare League.

6. **A Maori health resource unit be established with advisory, monitoring, and research functions. The unit should have a Maori director and a research officer and be supported by the Medical Research Council of New Zealand and/or the Department of Health.**

   The unit would assist in the development and promotion of relevant research projects ensuring that Maori Kawa (protocol) was a prime consideration. The unit would be responsible for ongoing monitoring of Maori standards of health and publishing periodic reports. Emphasis would be given to areas of current concern such as Maori women's health, unemployment and health, culture and health.

7. **Research be directed into areas highlighted in this report.**

   These areas include the following: access and acceptability of current health care delivery; unemployment and health; antisocial behaviour and violence; lifestyle risk-taking (cigarettes, alcohol, food); accidents in the home and on the road; genetic factors in disease, especially of the lungs, kidneys and metabolism; infections such as rheumatic fever and sexually transmitted diseases; cot deaths; diseases such as diabetes and asthma.

8. **The Department of Health's National Health Statistics Centre provide Iwi and Hapu health statistics as a basis for the development of health programmes with an Iwi or Hapu focus.**

9. **A further major report on Maori standards of health be prepared in due course to cover Maori health issues and health trends up until 1990.**

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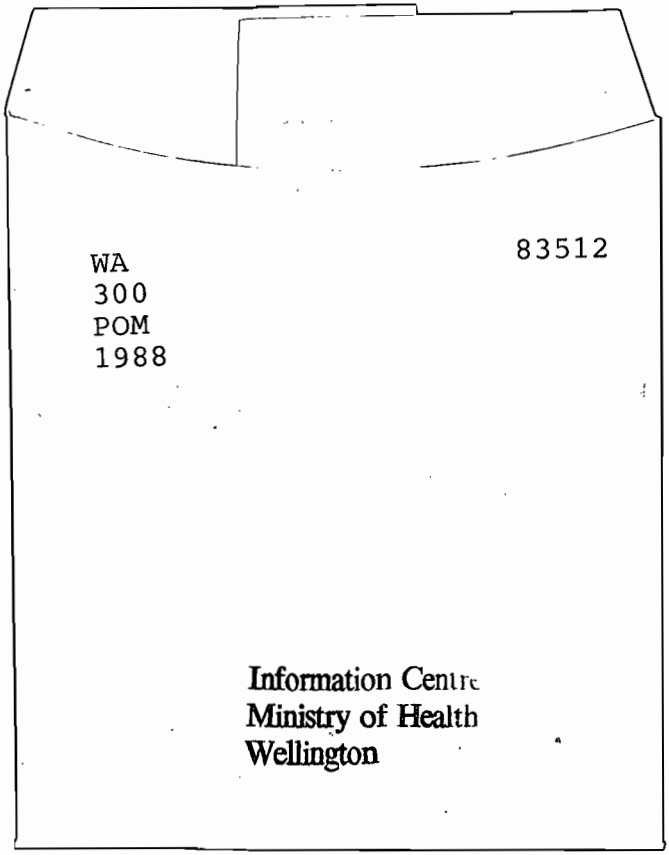

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